ELECTRICAL WEST

BETTER LIGHT
•
BETTER SIGHT

ELECTRIC light started this industry. Lighting is still one of its major functions. Yet despite fifty years of development, lighting is today one of the biggest markets. Why? Because of new conceptions and research which have developed a "science of seeing." New load, new business, new profits await those who bring the story of this science to the public. Let the industry, in its homes and places of business set the example.

NOVEMBER 1934
McGraw Hill Publishing Co. of Cal.
Twenty-Five Cents Per Copy

★

HELPING MERCHANTS CAPITALIZE THE NATIONAL HOUSING PLAN

★

HERE'S THE
MONEY
TO REMODEL
YOUR KITCHEN
Your Banker says
The All-Electric Kitchen you have always wanted can now be purchased at minimum terms through low-cost loans now being made to homeowners through the government's remodernization plan. It's an opportunity you cannot afford to overlook. . . . Consult your banker, electrical dealer or the Edison Company.
HOW TO GET YOUR MODERN ALL-ELECTRIC KITCHEN
Drop in at your local Edison office and you will be given a free bulletin containing complete facts about this new, convenient financing plan for re-modeling your kitchen.
NOTE: With an electric range you enjoy the advantage of a low wholesale rate which applies on every use of electricity in the home.
SOUTHERN CALIFORNIA EDISON COMPANY LTD.

One of the Southern California Edison advertisements about National Housing Loans.

A series of dominant newspaper advertisements is pointing out to home-owners throughout Southern California the opportunities to re-modernize with up-to-date electrical appliances under the loans afforded by the National Housing Act.

This campaign has been prepared and placed by Southern California Edison Company in behalf of merchants selling electrical equipment in the communities to which the Company's lines extend.

Recommending the individual homemaker to consult with a local banker, as well as the dealer in his neighborhood, an offer is also made of a booklet, giving complete information as to how National Housing loans may be secured.

Merchants see in this cooperative move a definite stimulus to Fall and Winter sales. It will benefit the buyer, the dealer, the banker, the community in general.

★ Edison ★

SOUTHERN CALIFORNIA EDISON COMPANY LTD.

NRA Graphic Arts Code No. 4-611

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ELECTRICAL WEST

With which are consolidated the "Electrical Journal," the "Journal of Electricity, Power and Gas," and the "Journal of Electricity."

ESTABLISHED 1887

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George C. Tenney, Editor
W. A. Cyr, Associate Editor
C. W. Leihy, Engineering Editor
Roy N. Phelan, Manager
Hans Hjorth, Typography

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Publishers of

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▼

• MANY PEOPLE liked ELECTRICAL WEST's new typographical style, as well as its selection and arrangement of contents. Here are some of the comments from letters:

"The October issue of ELECTRICAL WEST contains some mighty good articles and suggestions and the staff is to be congratulated on compiling an issue so brimful of ideas."—Guy Davis, Merchandise Manager, Pacific Power & Light Co.

"I have just finished looking over your October issue and think your new format is mighty fine. It provides a much more able presentation of the contents and should bring you much reader good will."—V. W. Hartley, Managing Director-Secretary, P. C.E.A.

"The writer desires to compliment you on the attractiveness, typographically, 'intellectually' and otherwise of your October number. In particular he desires to express his appreciation and compliments to the writer of the article 'The Science of Politics,' which I consider to be one of the best merited castigations of selfish political interest I have ever seen."—Herbert L. Adams, Savage Distributing Co.

Our new editorial program is built upon providing something of benefit and value to every individual in the electrical industry in the Far West, interpreting it in terms of its *significance* to him.

• F. E. ROSS, who writes of the industry's responsibilities to its customers, was an advertising man before he entered Puget Sound Power & Light Co. That's why he sees the public relations problem as one to be solved by a sales viewpoint.

• THIS MONTH'S "ENGINEERING SYMPOSIUM" is devoted to a study of termites, destroyers of poles and every conceivable type of wooden structure. An expert tells some of the methods of combatting them, and utility men give their experiences.

• RURAL LOAD BUILDING this month tells how California schools prepare the young farmers of tomorrow to be electrical in their tastes and methods.

• WHOLESALERS, their code in hand, are setting up the machinery to operate under it. Contractors feel that strength will come to them and to wholesalers both from the latter's code.

Next Month

• FEATURED in the December issue will be the eight problem papers that are to form the basis of activity for the Pacific Coast Electrical Association until next March. Load-building, intra-industry cooperation, free service, voltage regulation, and distribution costs will be treated critically and comprehensively.

DOLLAR-MINDED MEN

LUSTROUS, CLEAN SANALLOY. FINEST, FASTEST QUICK-COOK UNITS
AMAZINGLY SIMPLE, NEW DIRECT-ACTION THERMOSTAT, NO RELAY!
BIG 16" OVEN, PORCELAIN-LINED, WITH 2000-WATT BROILING AND BAKING UNIT. PORCELAIN PANEL.
CHIPLESS, NEW HIGH-TEMPERATURE DULUX AMAZING CHEMICAL ACHIEVEMENT!
RIGID WELDED CONSTRUCTION

STRENGTH!

Sensational new welded steel construction gives everlasting sag-proof durability. Once leveled in a kitchen, never any uneven-baking complaints.

(Photo courtesy Hagenbeck-Wallace Circus.)

THE WESTINGHOUSE *Cardinal*

AUTOMATIC ELECTRIC RANGE •

You know the powerful appeal a price leader makes to bring women into stores . . . and the great increase in volume that results for you on *all* merchandise in that line.

But YOU have to be dollar-minded, too. At as low a price as $61.25 for a big, full-size automatic electric range "leader," can it have quality that will stand up — and not *eat* service dollars? Will it have appearance that will *win* women? And performance that will *keep* them enthusiastic?

You KNOW that if the answers are *right*, with the unheard-of low price of $61.25 to head up the line you display, you can cash in *fast* on the swelling tide of national interest. For the easily proved advantages of *electric* cooking put *power* into the sales story. So read the straight-forward answers on the next page; then send for the complete story — and when you say the word we'll help YOU start the snowball rolling to greater and greater range volume.

ASK 3 QUESTIONS!

ABOUT THIS AMAZING, FULL-SIZE AUTOMATIC ELECTRIC RANGE AT ONLY $61.25 LIST

Can I sell it in profitable volume?

Yes! Just show it to women and SEE their enthusiasm. Liberal "leader" discount. Beautiful displays, selling helps and complete program — ready to help you *plan for profit*.

Do you guarantee quality?

Yes! Only Westinghouse engineering and long years' research explain the price. The automatic control, for instance, has been *proved* in industrial applications far more severe than any conceivable home test. The amazing new finish will withstand extreme tests that others *cannot* survive. This range will *reduce* servicing.

Will it cook as fast as women demand?

Yes! You can demonstrate speed to satisfy *any* woman. The new Quick-Cook units are the most efficient, fastest, most durable of their type we have ever produced. You can match them with any comparable units for speed and durability.

● DOLLAR FOR DOLLAR this amazing new Westinghouse *Cardinal* Range will stand out in competition with fuel ranges. BUT, with *this* range you can demonstrate and PROVE —

CLEAN, SAFE COOKING; free from soot, odors, fumes

AUTOMATIC COOKING; perfect results *every* time, no watching

COOL COOKING; insulated as perfectly as only electric heat can be

FASTER; takes less time — and you can prove this, too.

ECONOMICAL of current; and it

SAVES MONEY in food shrinkage, redecorating, etc.

How can you prove these things? We help you equip with Demonstration Kits; also with manuals, displays and complete campaign plans. You can sell *electric* ranges not only to the vast number of women who right now *must* buy replacement ranges, but even to women who, at *this* price, will WANT electricity's modern advantages, though their present ranges may NOT be worn out. We can't tell the whole story here. Mail the coupon for full information.

Westinghouse Electric & Mfg. Co.,
Range and Water Heater Dept., Mansfield, O.
Send the whole profit story of the new Cardinal range.

Company.....
Attention.....
Address..... E.W.-11-34

PORTRAIT OF YOUR BEST CUSTOMER!

Sell him these

Make Santa Claus work for you. A large percentage of his Christmas gifts this year can be electrical gifts—providing *you* sell them to the gift-givers. Graybar can help you in your selling job by providing a varied line of attractive and up-to-date electrical appliances. Appliances from Graybar are dependable, *quality* appliances. They help make satisfied customers—and more sales in the future. They are backed by a reputation for quality that goes back 65 years to 1869.

IMPORTANT ANNOUNCEMENT TO DEALERS!

A NEW Graybar appliance sales policy is now in effect. Appliances are now being sold under manufacturers' trade names. The Graybar tag will identify them as bearing Graybar's seal of approval. Graybar policies of "living" profits for dealers will be continued. Finally, new and complete Graybar sales promotion plans have been developed to help you boost sales volume.

Graybar

OFFICES IN 74 PRINCIPAL CITIES. EXECUTIVE OFFICES, GRAYBAR BLDG., NEW YORK

A COMPOUND FOR EVERY PURPOSE

KNOW THEM...SPECIFY THEM

AMERICORE—National Electric Code Standard.

AMPARAK—Intermediate Performance Test.

AMERITE—30% Performance Test. Meets A.S.T.M. spec. D27-31T-AO.

AMPEROX—35% Super Aging compound with highest Oxygen Bomb Tests.

AMERZONE—Corona proof—Ozoneproof.

AMARINE—40% Submarine compound—Used without lead.

AMERCLAD—"Tire" stock for jackets of portable cords, and drag cables.

1831

1934

AMERICAN STEEL & WIRE COMPANY

SUBSIDIARY OF UNITED STATES STEEL CORPORATION

Pacific Coast Distributors

COLUMBIA STEEL COMPANY

SAN FRANCISCO LOS ANGELES PORTLAND SEATTLE

Now... 1 TRANSFORMER *instead of many*

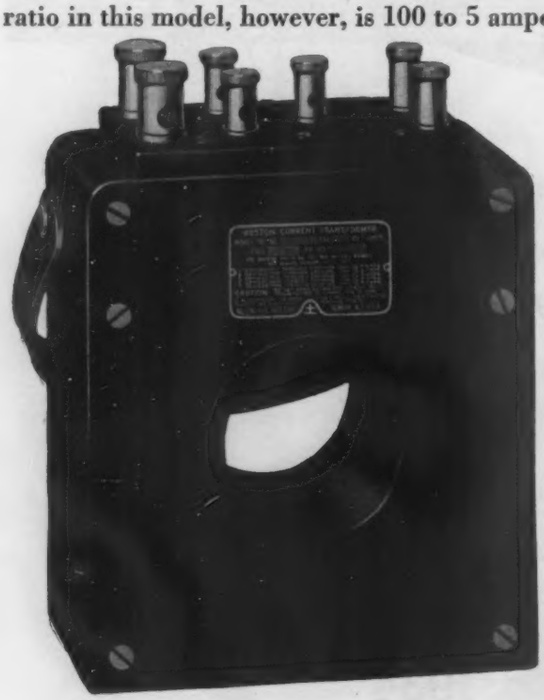
No longer is it necessary to use several transformers to cover the range of currents commonly encountered in laboratory and commercial testing. Weston has provided 2 new exceedingly accurate HIPERNIK core transformers for currents up to 2500 amperes.

Each of these new, accurate WESTON current transformers replaces several — together they meet practically all testing requirements.

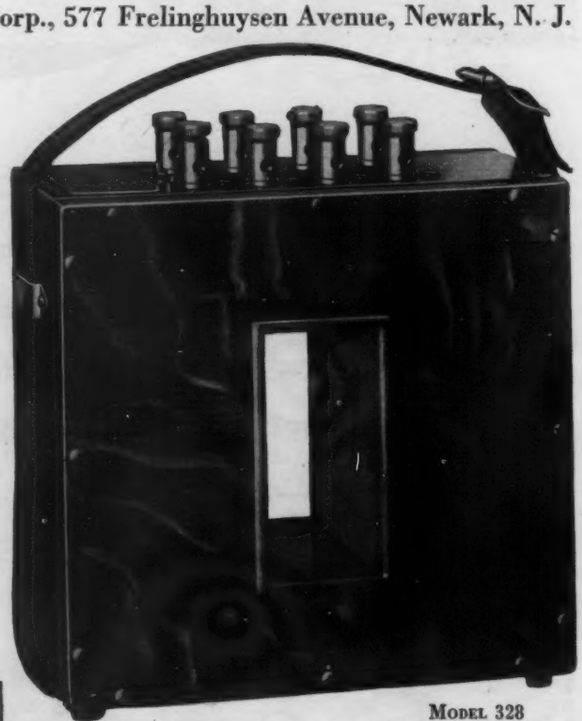
The Model 327 is for use in testing currents up to 1000 amperes, having ranges of 10, 20, 50, 100 amperes on binding post connected taps; and 200, 250, 500, 1000 amperes with inserted primary.

The Model 328 is more comprehensive in ranges, providing as it does 22 different transformer ratios up to and including 2500 amperes. The minimum ratio in this model, however, is 100 to 5 amperes.

The accuracy of both models, when used with a Weston Wattmeter, Ammeter and Power Factor Meter is within 0.1% for secondary currents from 0.5 to 5 amperes at 60 cycles. The large number of ranges available and the high accuracy of these transformers renders them especially useful for use with comparators in checking the accuracy of other transformers. Thus Weston simplifies the portable current transformer problem . . . for when you specify or use either of these new Weston transformers, one suffices instead of many. Complete information is available . . . send for it today . . . Weston Electrical Instrument Corp., 577 Frelinghuysen Avenue, Newark, N. J.



MODEL 327
Weston Portable Current Transformer — furnished in moulded bakelite case, size 9¾ x 7⅝ x 3 inches



MODEL 328
Weston Portable Current Transformer — furnished in polished oak case, size 9½ x 10 x 3½ inches

WESTON *Instruments*

PACIFIC COAST REPRESENTATIVES

Eicher & Bratt,
263 Colman Bldg.,
Seattle, Wash.

C. F. Henderson,
420 Market St.,
San Francisco, Calif.

Electrical Engr. Sales Co.
Subway Terminal Bldg.
Los Angeles, Calif.

Adds 2910.5 KW in EIGHT-WEEK DRIVE

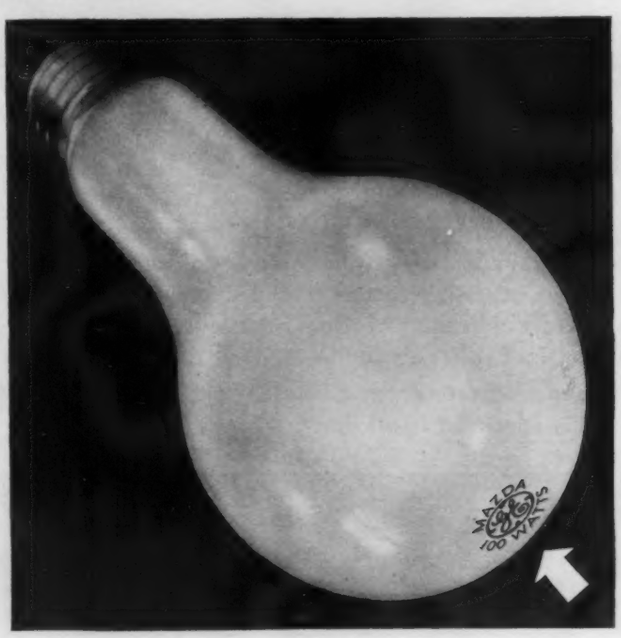
Tennessee Electric Power Company Boosts Load in slump period by developing lighting markets in accordance with New Science of Seeing

AN increase of 2910.5 KW between June 4 and July 28 is one of the immediate results achieved by a Better Light-Better Sight campaign put on for eight midsummer weeks by the Tennessee Electric Power Company throughout its territory in Tennessee.

With the New Science of Seeing as a foundation, the purpose of this drive was to increase load by selling a higher standard of illumination to customers. It was more than realized in new business secured . . . in building up good-will of customers . . . in directing their attention to the importance of lighting . . . in creating prospective additional business for fall and winter.

The activity included all branches of lighting work except residential reconnects. A total of 40 lighting sales people participated directly, including 18 women on home lighting, 20 men on commercial lighting, and two men on industrial lighting. The home lighting group went 83% above their quota, commercial salesmen beat their quota by 147%, and the industrial men topped theirs by 28%.

Lighting kits and Sight Meters played an important part in the work done both by commercial and residential lighting salesmen.



Here are some of the high lights of the campaign:

Combined results:

	Number of Jobs	*KW added*
Commercial Lighting	1928	2263.2
Industrial "	45	250.4
Residential "	1565	396.9
	3538	2910.5

Some of the details pertaining to home lighting activity are:

Number of women employed to do home lighting	18
Average number working during 8 weeks	16.5
Number of first calls made	3003
Number of call backs	1067
Total calls made	4070
Average calls (interviews) per woman per day	6
Number of homes in which wattage was added	1565
Total increased lighting load added	396.9 KW
Average wattage added per woman per day	600
Total number of repairs made by lighting advisors	216
Total load returned to service through repairs made	33.3 KW
Number of complaints investigated	334
Number major appliance prospects turned over to Merchandise Department	645
Number major appliances sold to Lighting Advisors' prospects	73

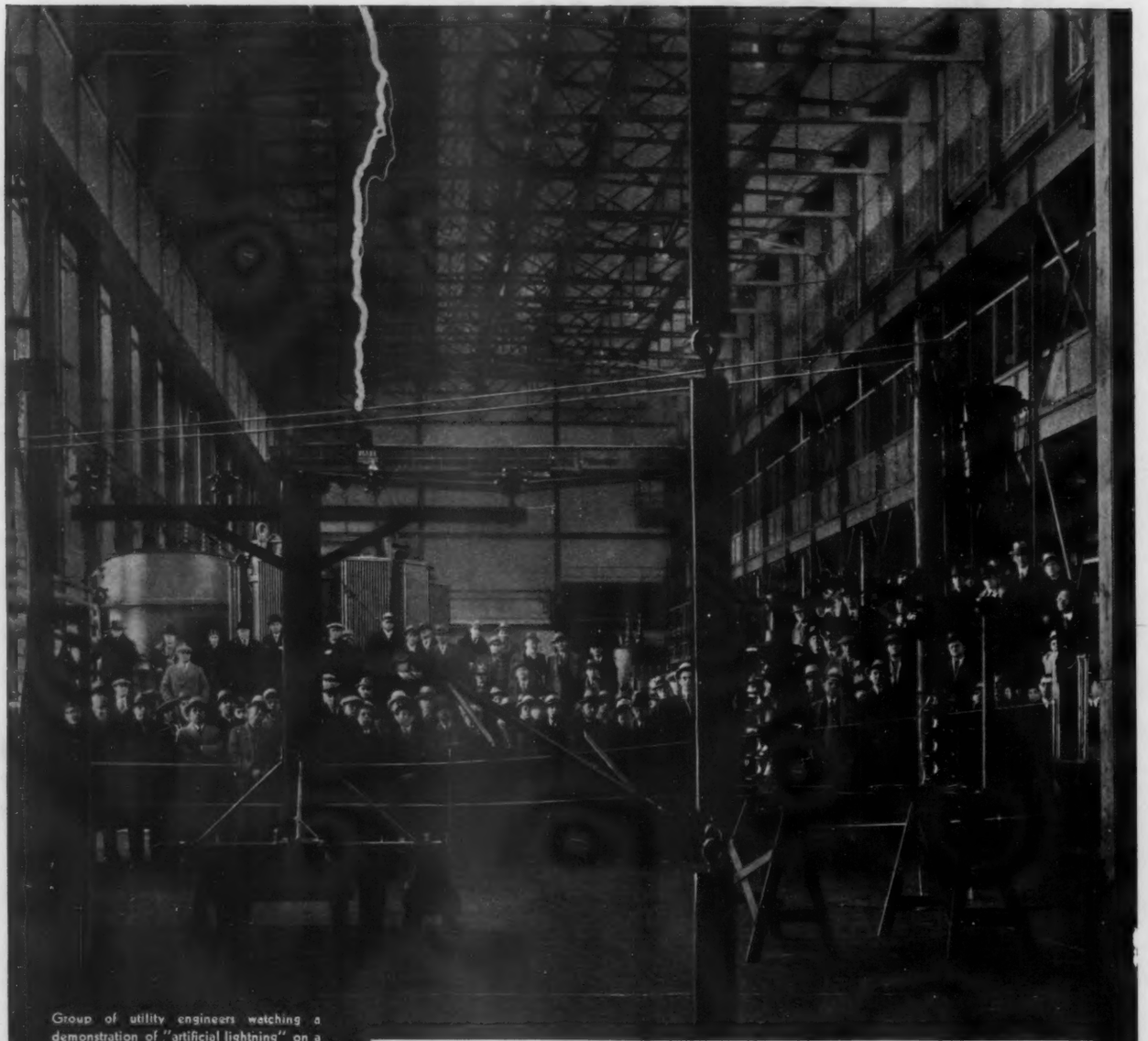
Write for further details

The General Electric Company has invested a great deal of manpower and money to discover at first hand the most practical methods of developing lighting markets in accordance with the New Science of Seeing. Out of this research have come proven helps to assist you in taking full advantage of the Better Light-Better Sight program. Write to your source of MAZDA lamp supply for any additional information about printed material and sales aids which you may be interested in getting. General Electric Company, Nela Park, Cleveland, Ohio.

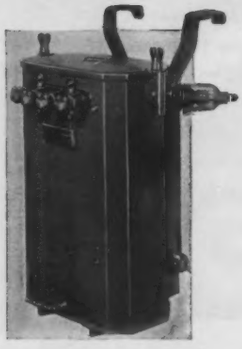
Incandescent Lamp Department

GENERAL ELECTRIC

NELA PARK, CLEVELAND, OHIO



Group of utility engineers watching a demonstration of "artificial lightning" on a Type SB Transformer in the Allis-Chalmers high voltage laboratory.



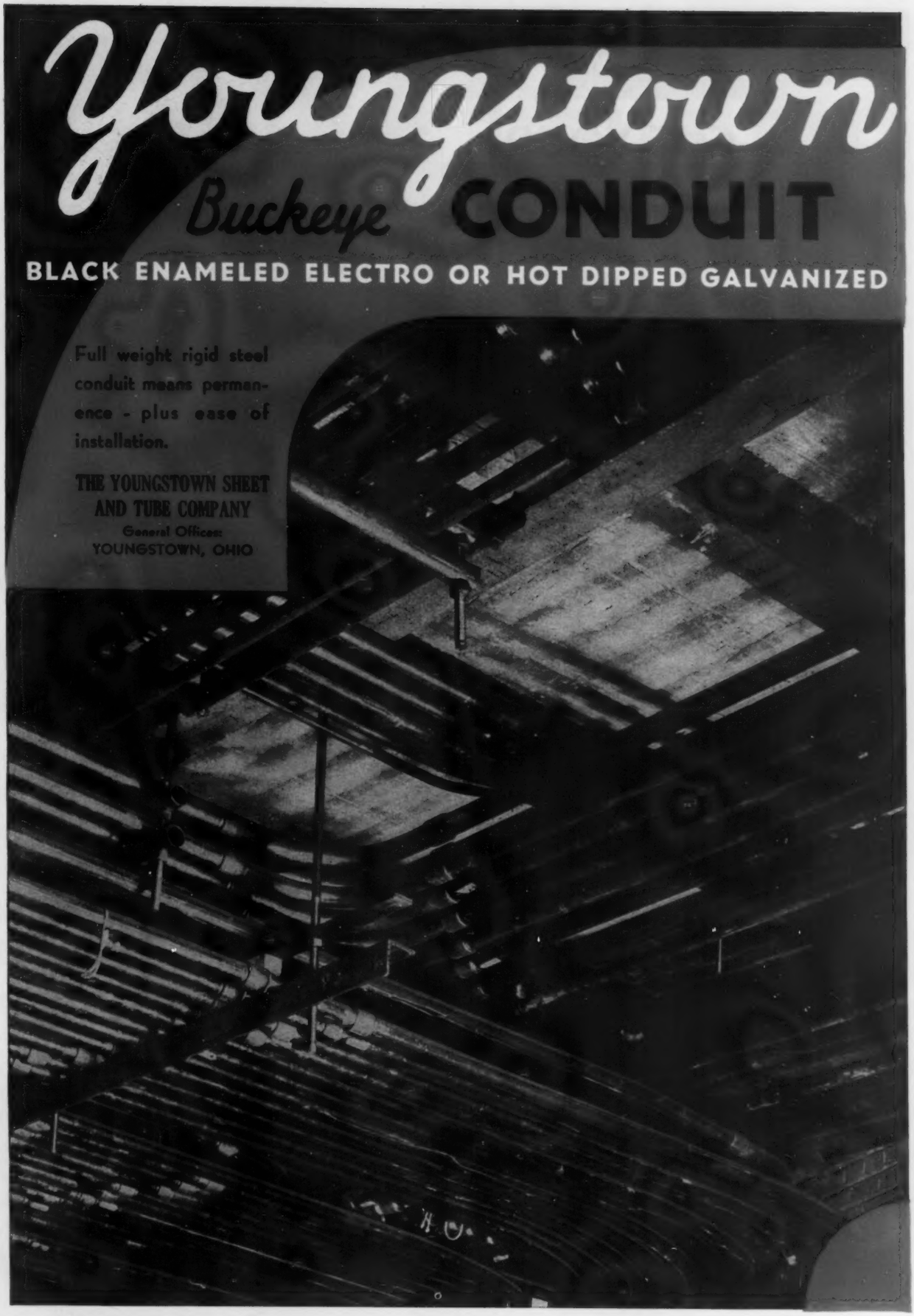
Guaranteed Against Lightning Failure ...

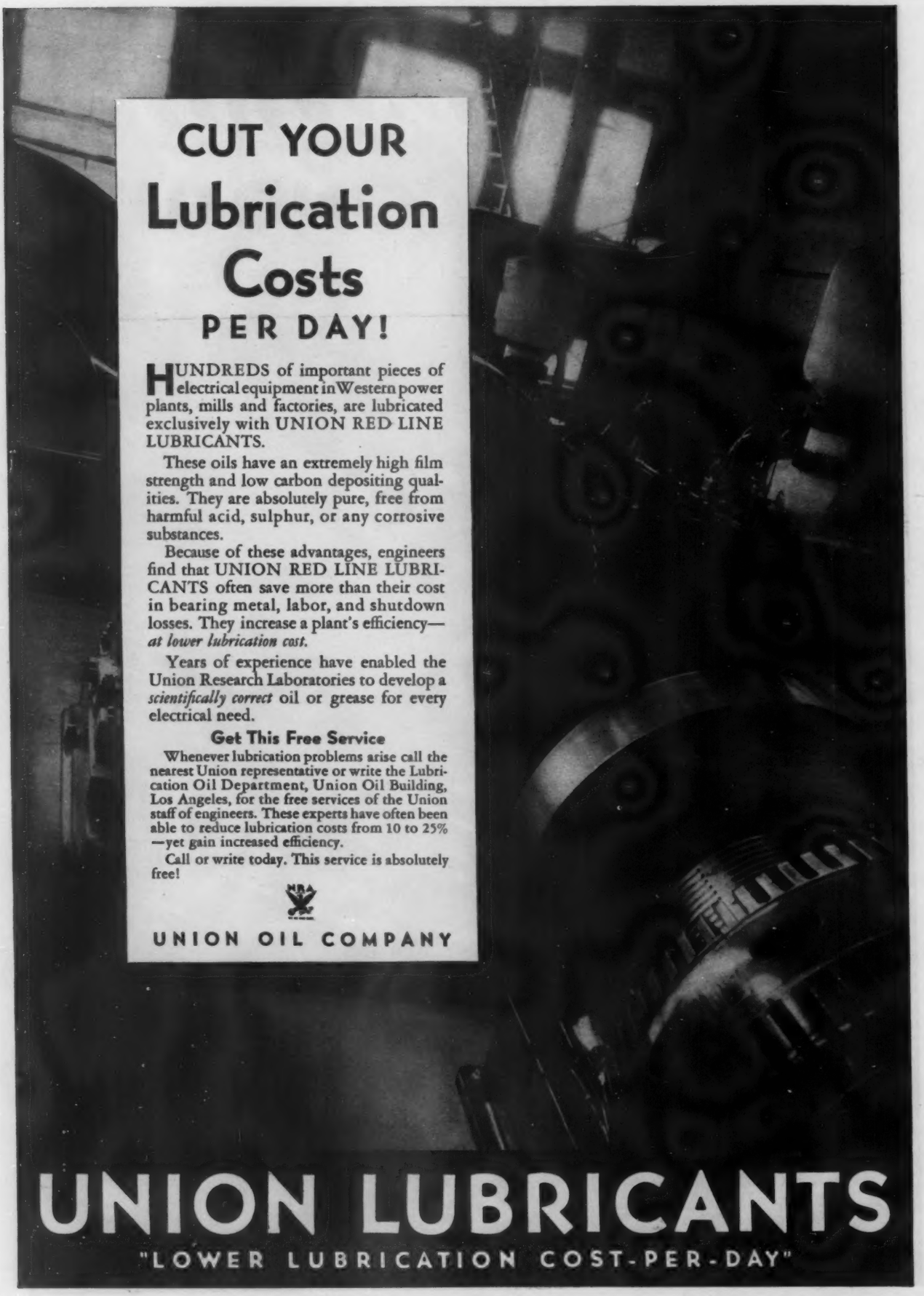
Type "SB" Surge-Proof transformers have been in service in all parts of the country under widely varying conditions for over three years. The operating record of these transformers has established beyond doubt their freedom from failure under lightning or other transient voltage conditions.

Ask our nearest representative for Bulletin 2166 which describes in detail this advanced transformer.

ALLIS-CHALMERS

Allis-Chalmers Manufacturing Company, Milwaukee


Youngstown
Buckeye CONDUIT
BLACK ENAMELED ELECTRO OR HOT DIPPED GALVANIZED
Full weight rigid steel conduit means permanence - plus ease of installation.
THE YOUNGSTOWN SHEET AND TUBE COMPANY
General Offices:
YOUNGSTOWN, OHIO


CUT YOUR
Lubrication
Costs
PER DAY!
HUNDREDS of important pieces of electrical equipment in Western power plants, mills and factories, are lubricated exclusively with UNION RED LINE LUBRICANTS.
These oils have an extremely high film strength and low carbon depositing qualities. They are absolutely pure, free from harmful acid, sulphur, or any corrosive substances.
Because of these advantages, engineers find that UNION RED LINE LUBRICANTS often save more than their cost in bearing metal, labor, and shutdown losses. They increase a plant's efficiency—at lower lubrication cost.
Years of experience have enabled the Union Research Laboratories to develop a scientifically correct oil or grease for every electrical need.
Get This Free Service
Whenever lubrication problems arise call the nearest Union representative or write the Lubrication Oil Department, Union Oil Building, Los Angeles, for the free services of the Union staff of engineers. These experts have often been able to reduce lubrication costs from 10 to 25% —yet gain increased efficiency.
Call or write today. This service is absolutely free!
NRA
UNION OIL COMPANY
UNION LUBRICANTS
"LOWER LUBRICATION COST-PER-DAY"

4 meter housings

A

THIS IS THE I-20A METER
—a standard meter unit with many new and improved features, such as a weatherproof die-cast base and a strong, corrosion-resisting sealing arrangement. Pull box and cover (not shown) permit conduit or tamperproof-cable wiring.

B

THIS IS THE I-20B METER
—identical with Type I-20A except that all the necessary facilities for disconnecting, reconnecting, and testing are included under the terminal cover. Pull box and cover (not shown) permit conduit or tamperproof-cable wiring.

C

THIS IS THE I-20C METER
—a completely armored, fully protected meter unit. It is identical with I-20B except for the connection block and protector case. Ideal for indoor or outdoor installation, with conduit or tamperproof-cable wiring.

S

THIS IS THE I-20S METER
—a socket or plug-in type for indoor or outdoor installation, with conduit or tamperproof-cable wiring.

. . . . . and the I-20 METER ELEMENT FITS ALL FOUR WITHOUT MODIFICATION

The I-20 meter element is assembled as a unit upon a strong cast-iron grid, so that it fits all four types of mounting — A, B, C, and S — even to the length and location of the leads. No soldering or lead extensions are required.

THE combination of a standardized meter element with four types of mounting makes possible the greatest flexibility with respect to safety features, test facilities, and protection against energy diversion. It simplifies the replacement of older types of meters, because it offers the choice of replacing the meter only (with Type I-20A) or of completely modernizing the installation, either indoors or outdoors. With the proper fittings, all four types can be used with conduit or tamperproof cable. General Electric Company, Dept. 6D-201, Schenectady, New York.

YOU CAN MEET EVERY REQUIREMENT WITH I-20 METERING

400-5

GENERAL ELECTRIC

WES HICKS *dictates a letter...*

CABLE ADDRESS "WESIX"

WESIX INC.

W. WESLEY HICKS, PRESIDENT

MANUFACTURERS WESIX ELECTRIC HEATERS

390 FIRST STREET

SAN FRANCISCO, CALIF.

November 1, 1934

Electric Utilities,
Gentlemen: Re: USE FOR THAT SURPLUS JUICE

"THE NEXT BIG JOB OF THE ELECTRIC UTILITIES IS TO HEAT THE HOMES OF AMERICA." (From Frank Putnam's report to the Walsh Committee).

ELECTRIC HEATING is a NATURAL load for West Coast electric utilities willing to take the trouble to control and guide its growth, but it must be ENGINEERED—not merchandised. All present available power and all projected sources of power will be required by present utilities if they reach their full usefulness.

POTENTIAL REVENUE. The greatest remaining potential revenue and a load easier to develop than cooking or water heating is electric heating in homes.

ANNUAL LOAD FACTOR. This load can now be built to the utility's own specification since load factor, demand and diversity are controllable. Foolproof WESIX-KERCHER automatic DEMAND CONTROLS now cost less than $2.00 per kw. of load. TIMING all or part of the heating load off-peak now costs less than $2.00 per kw. of load. Reliable KERCHER THERMOSTATS cost less than $1.00 per kw. of load. Time-proven WESIX heaters with INTEGRAL AUTOMATIC CONTROL in addition to manual switches, making each individual unit a complete heating system in itself, are available at a cost of $5.00 per kw. of connected load.

OBJECTIONS REMOVED. Intelligent use of present day inexpensive control means, favorable rates, and use of present day electric heating experience eliminates the old objections of poor load factor, high bills, and installation cost.

DEPRESSION REVENUE. Utilities showing sustained domestic revenue during the past four years are those having the best developed electric heating load.

IMMEDIATE NEW REVENUE. Nothing is closer to the consumer than his personal comfort. People like electric heat. Why not tap this reservoir of revenue? Immediate new revenue is available from present range users adopting electric heat for one room or for the entire house, with no new cost to serve.

YARDSTICKS. Government projects are taking the lead away from present utilities in the electric heating of homes in large areas. WHY? Private industry has the brains, experience, low-priced equipment, inexpensive thermal insulation, and a class of consumers discriminating enough to prefer electric heat on present rates.

COOPERATION. The best electric heating engineers in the United States are available on call at Seattle, Los Angeles and San Francisco Wesix factories.

Yours very truly,

W. Wesley Hicks.

ELECTRICAL WEST

[*Devoted to the economic production, transmission and distribution of electric power and its application to industry, commerce and the home in the Pacific Empire, and to the sale and distribution of electrical utilization devices, equipment and appliances in that territory.*]

November, 1934

We Are Responsible for How The Public Receives Us

By F. E. ROSS
Sales Department
Puget Sound Power & Light Co.

SUCCESSFUL selling of any commodity has, as its by-products, customer satisfaction, customer enthusiasm, and all the other various things that add up to what have been called "public relations". Public relationship is the reason that public establishments continue in business. Through no other means can a commodity be sold. Perhaps the most popular example of this is the department store. When it sells good merchandise at fair prices it simultaneously establishes a reputation for so doing. This reputation causes people to come back of their own free will to buy more of the commodities that are being sold by the store. If people did not come back it would not be long before there would be no department store.

The service which an electric public utility company has to sell is nothing but a commodity. The success of the public utility is based on the successful sale of its service. The successful sale in relation to a public utility means just exactly the same thing as in the case of a department store. The task of selling therefore must be the duty of each individual employed by the utility company. I wonder whether the tendency has not been too much towards putting into the hands of one special individual the task of bringing about proper "public relations". In such cases hasn't the tendency of the remainder of the organization been to leave the task in the "expert's" hands?

Personally, I am in favor of the idea that the cultivation of sound public relations is the duty of every man and woman in the utility organization, because it is the duty of every man and woman employed by any company to sell its product. It makes no difference whether the employee may be a cashier, a mechanic or a truck driver, they are hired solely on the basis of making it possible to render a better service, which in itself is a big part in selling.

Suppose that there are 500, 1,000 or more people in the employ of a utility. They represent a great sales force. Their sphere of influence can be tremendous if their efforts can be coordinated. By sales force I do not mean that they could be made to go among their friends and in a given period sell so many electrical appliances or bring in so many new customers for service. What I do mean is that if the personnel can be so organized and so coordinated as to tell the same story to the public, and to tell it with earnestness and conviction and in an aggressive way rather than in a defensive way, the utility would have a great instrument in selling electricity, and through it gain proper public relations.

To accomplish this through the employees requires a well thought out and a consistent selling program. I do not mean a campaign, but a program as consistent as an individual's personality itself.

This is done in many closely knit organizations, as for instance in the automobile industry and in most other commodity manufacturing enterprises. You will find that in the automobile business from the factory clear down to the dealer and service shop every man connected with the manufacture or sale of their particular commodity always seems to think that it is the best made, at least in its price class. He lets few opportunities pass to express his views. He resents criticism of the product. More than that, he usually presents enough sales arguments so that criticism has very little opportunity to have its effect.

If this same degree of interest, knowledge of the utility's service and loyalty to the company can be built up among the individuals in utility organizations our local problems could be materially simplified, and if carried further, so that the employees of all utilities were telling substantially the same story and working toward the same end there would be a cumulative effect that would materially benefit the industry. I personally believe that this is absolutely necessary in the new light that has reflected itself upon the utilities as a whole.

Our employees should be so imbued with the benefits the public derives from the operations of the well-managed, efficiently operated company of which they are a part, and the almost infallible service which it renders at a very moderate cost that they cannot help but put their story across whenever the opportunity arises. This story should not be on the basis of the individual employee, but of the company.

Some utilities today are in the paradoxical position of having many individuals in their employ very well liked by their neighbors and by the customers they come in contact with, yet the company is being criticized, whereas actually the company is nothing more than all of its employees as a group. This comes about in some measure through well meaning employees who have not had the proper direction in selling. To illustrate, the following is an actual case of an employee, of my own acquaintance, in a utility with which I am familiar.

All utilities have had the serious problem of service cut-outs during recent years because of non-payment of bills, and most of them have handled it with a great deal of consideration for the people who have been unfortunate. The company I have in mind sent one of its men out to cut off a customer, that the company felt could pay but wouldn't. It seems that the customer had a group of women in for an afternoon of bridge, and when the employee introduced himself at the door the housewife explained her predicament and said that it would be very embarassing for her at that time to have the service cut off. This is substantially what the utility man said: "I am going to take it upon myself not to cut you off today, but will be back tomorrow. I will very probably be criticized by my superior for doing this."

Unquestionably this employee would not have been severely criticized by his superior, but rather he would only have been expected to explain why he had not done as directed. In his own mind that is what the employee meant, but said that "he would be criticized". I believe the employee should have answered like this: "Although you realize that our company feels you should pay your bill, I know that it is not the desire of our company to embarrass any of its customers more than it is absolutely necessary, and I would very probably be criticized by my superior if I cut out your service now when I can do it tomorrow, and not cause you this embarrassment."

The utility representative involved did not desire to bring himself up in the woman's estimation at the expense of the company for which he worked, he just had not, through lack of proper instruction on how to build up public relations, met the situation as it should have been met. He had not been trained to evaluate a situation and meet it by some original thinking on his own part.

I have often thought what a wonderful demonstration it would be of the value of public utility service if we close down our plants to the last switch every day for an hour, or even five minutes. That, of course, is out of the question, but it does seem to me that there are ways that the utility can bring the public to appreciate what they are getting through the expenditure of personal effort and printer's ink properly directed. The prime requisite is person to person contact, religiously kept up and directed and coordinated so as to achieve lasting results. There is no way economically possible except to build our own personnel into a closely knit, uniformly thinking and enthusiastic "selling" organization, if you please to term it such. The second requisite in the establishment of a true appreciation of public utility service is in pure and simple shownmanship.

It was my good fortune at one time to handle the advertising account for a manufacturer of doors. Now, there aren't very many things as common and ordinary as a door. In some respects the door in the minds of the public may be a first cousin to electricity. Few people realize that they have a door unless it is out of order. This is true with electricity. Most makers of doors do not advertise to the general public. They are content in trying to sell the architect, builder and lumber dealer. This manufacturer of doors decided to go to the general public. He soon found out that people were not interested in the internal construction of the door other than in an assurance that the product had quality. The problem was to catch the public's eye, and this particular manufacturer had what it took —real showmanship.

His first advertisement showed the door in a water tank—it didn't warp; his second advertisement showed the door on a roof in the sun—it still didn't warp or check, and his third advertisement showed the door in a stress testing machine—the door didn't budge from its original shape. When this manufacturer talked of design he talked of the eminent artist that designed the doors. Yet his designs were not much different than common, ordinary doors, but he added the necessary color to the design story to make it appealing.

This simple illustration should point out how common, ordinary things can be made noticeable.

Finally, in all our work, whether through personnel organization, through advertising or other contacts with the public, let us have a little more showmanship in the selling of kilowatt-hours. It is unfortunate that we cannot go to the housewife and sell her electricity at so much a washing per week or so much for a kettle of beans for a family of six. We must continue to sell

F. E ROSS

her kilowatt-hours, which are more intangible and meaningless than anything else except perhaps the cosmic ray.

I believe that the utilities today have the brain-power to think up ways and means by which the story of the kilowatt-hour may be appealingly told. There is no doubt in my mind but that our story can be brought before the people in such a manner that they will be convinced that electricity is economical, efficient and inexpensive and that it serves an every-day purpose in every home that cannot be replaced. People can be made to realize that the method by which electricity is now brought to them by private organizations who are ambitious to give the best service that is within their ability are the right organizations to patronize.

When people are convinced that it is a fair price that they pay and they are sold on the commodity, they will sell this commodity to others and will sell the company that manufactures this commodity to their neighbors.

Let us have more showmanship, more appeal to the human sensibility. In a hundred different ways, this mysterious thing—electricity—and our wonderful machines for creating it, and the ingenious and intricate paths by which it is led into great factories or tiny cottages, must be dramatized and brought home to the people. The uses of electricity and the great servant that it is must be dramatized in such a fashion that the customer who pays his dollar for electricity feels in his mind that he is getting more than the dollar's worth. Then, and only then, will they respect and admire that thing which they call "the utility", or "the power company" or "the power trust".

Lost in a Maze of Experiment

Experimental, N. D.

Dear Electra:

It may be some little time before I get back, because I'm not sure just where I am or how I got here. The place must be pretty far off the beaten track because I only heard fifth-hand rumors about it heretofore. It doesn't show in any of the geographies or histories I ever read.

The way I figure it out, Electra, I must have dozed slightly at the wheel and followed the car ahead. Or else some one deliberately changed the road signs so that I, along with a lot of other businessmen, was misled. Certainly I never came here of my own accord.

The people here look normal, but their talk, their thinking and their actions just don't make sense. I've been trying to discover what I have to do to get out, but none of the local people seem to know or to give a damn. I have tried to be agreeable and play cards with them, but they change the rules whenever they want and I always seem to be the goat.

You see, nothing is permanent in Experimental—even the name. There's an Experimental Architect, an Experimental Dam-Builder, an Experimental Mattress Maker, an Experimental Farmer (who doesn't raise hogs and cotton)—but they are always under new management. Why, they even have Experimental Strikes.

Most of the people here wear horn-rimmed glasses and are absent-minded, and they have one particular custom which is descriptive of their methods. They walk along the street and jibe, criticize and ridicule anything and anybody.

One of my business friends who got lost with me was driving through town only yesterday, and he became so flustered at the jibes of the natives that he got into a nasty wreck. And then the townspeople browbeat him even more and fined him for reckless driving!

Funny thing, Electra, but these people both hate and love taxpayers. They hate them for being able to pay taxes and love them because otherwise the Experimentalists wouldn't eat.

Something else here gets my goat and that of a lot of other business men who are stranded with me. Questions that demand honest, straight-forward answers are taboo because they embarass the natives. One poor chap had the temerity to ask some questions in public: Will taxes be increased and how much? Will the budget be balanced and when? Will section 7-A of NIRA be interpreted and how? Will the Experimentalists persist in unfair competition with business?

Naturally he would have liked answers in his favor, but he honestly wanted answers one way or the other so he would know what was coming and how to plan for the future.

At first he was ignored. However, he was so persistent that one of the Chief Experimentalists arose and began ridiculing the poor devil, meanwhile looking around to see if the listeners would join in the fun fest. You know how it is. Just like the leader of a gang of kids who decides that he doesn't like Billy, so he starts to chant, "Billy is a stinkbug, Billy is a stinkbug!" Pretty soon the other kids join in and Billy, unless he can take it and like it, plays by himself.

Well the ridiculing act was effective. The poor chap, with his family and his business to think of, shut up. But the act won't work forever. Eventually the method will be recognized as evasion and the audience will laugh at the ridiculer and not at the ridiculed.

I had an experience yesterday that is typical. I took my car to a garage to get it tuned up so I can hum along when I get back on the road, but what do you suppose happened? The Experimental Mechanic backed me up to the wall and began to yell:

"So you want me to fix it, eh? I suppose you want it back in its original shape. Ya-a-ah, then you'd go out and murder people with it. You'd use it to commit rape, arson, kidnaping and burglary. You'd let highwaymen, bandits, gangsters and maniacs drive it. All right, all right. Maybe nothing like that ever happened in your car, Mister, but it happened in cars just like yours. So your car is a public menace too.

"No, sir, I'd be false to the trust placed in me by all those people who have been robbed, assaulted and murdered with the help of autos, if I so much as touched that old car of yours.

"Tell you what I'll do though. Junk that thing of yours and I'll design and build you an auto along lines of my own. It *might* bear some resemblance to your old car and it might do some of the same things. To make it snappy and official I'll give you a radiator cap in the shape of a blue enameled eagle. You'd better take it. That thing of yours is a wreck and this new one is worth trying anyhow."

That's why I don't know when I'll ever get home, Electra. If they don't give me my old car back, I may have to stop every mile or so and fix a flat tire or jiggle the carburetor.

One nice thing. These people have a sense of humor, so no one ever refers to the town as Noble Experimental.

Your Loving Husband.

P. S. I need some more money. After I finish paying all the taxes and the extras, there isn't enough left for food and a bed. So go out in the back yard and dig up that can under the apple tree. Send me all that there is in it. But whatever you do don't send that old $50 gold slug that grandfather sent from California in '49. If they caught me with that here, they'd throw me in jail sure. Nobody seems to know why, but an old dollar is only worth sixty cents here and there is talk of making it less than that. I have had to quit eating bacon for breakfast. Some Experimentalist ordered 6,000,000 hogs killed.—Y. L. H.

Engineering Symposium + + +

[A monthly forum in which engineers will present and discuss their problems, this department is dedicated to advancing the art of power generation, transmission, distribution and utilization.]

Public hazard created by termite damage to a pole line resulting in its collapse across a heavily traveled highway in the Northwest

Termite Control for Utility Structures

New Treating Process In Which Any Desired Color May Be Added to the Preservative Protects Poles, Crossarms and Pins From Dry Wood Termites. Laboratory Studies Promise Progressive Reduction In Losses Attributable to These Pests.

By A. A. BROWN
Consulting Engineer, San Francisco

In this article, Mr. Brown describes the differences between earth-dwelling and dry wood termites, their habits and the effectiveness of various means of controlling their activities with reference to public utility structures. Control of these insects means greater economies, lessened hazards to the public, and improved service.

TO the utilities of the West with their thousands of wooden structures, termite control is an economic problem that has more than one significant aspect. First and most important is the direct savings possible by reducing damage to and preserving the life of poles and buildings. Second and possibly equally important is the preservation of a flourishing lumber business, the operations of which may be seriously threatened by the adoption of wood substitutes not subject to the ravages of termites. Third, less tangible but very important, is the reduction in hazards to the general public through the failure of structures which have been gutted by these pests.

More than fifty species of termites are native to the United States and are found in destructive and ever-increasing numbers in practically every state. From their original useful function as forest scavangers, breaking down and restoring deadwood tissue to the soil and air, termites have become a significant economic problem as a result of the artificial accumulation and widespread distribution of their natural food supply in the form of timber in man-made structures. The result has been to facilitate the spread and rapidly increase the number of these insects.

The food of termites is primarily cellulose and is usually taken from the wood within which their burrows are made. As civilization advances human culture avails itself of cellulose in ever increasing amounts and wider uses thus fostering the growth of these hidden and widespread utilizers of cellulose.

Man's relation to the termites cellulose cycle is important by making available to the termite large stores of food. He masses wood in buildings in cities and towns and spaces it conveniently along his lines of communication and power as poles and fence posts. These structures have fostered local concentrations of infestations and facilitated the spread of termites into fresh areas until the forest is no longer the principal reservoir of infestation.

Again favoring the life of termites, the wood made available for termites through construction operations is not, as a rule, that dying on the stump and thus slowly brought to the verge of decay, but the tree felled in the full flush of its activity, rich in the stored products of photosynthesis, and containing more proteins and other food elements desirable in the diet of termites. Thus the development of our modern industrial life has made available to the termite an unlimited food supply under conditions favoring a rapid colonization by these insects. Termites multiply by geometric progression and in time can be expected to move in and occupy the available food supply. Termites have been doing this very thing until large reservoirs of infestation have been established in cities and towns distributed across our country. To date little progress has been made in establishing control measures because the habits and activities of termites have been so little understood by the construction industry and the general public.

Reassurance, however, that the termite problem is by no means insurmountable may be found in the report of the Termite Investigating Committee* entitled "Termites and Termite Control" which contains the following statement: "The result of our investigations should be reassuring alike to the producers and consumers of wood. Structural methods are here made available to the builder, architect, and engineer, which if used and supplemented by inspection and maintenance, will greatly reduce and even ultimately render insignificant the loss due to termite attack."

Habits of Termites

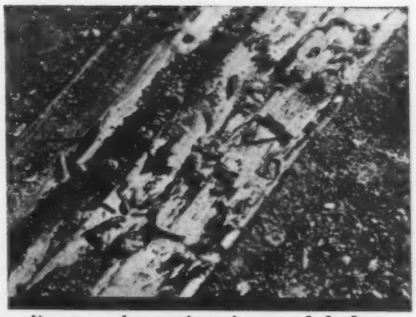
Termites are commonly, but erroneously, called "white ants". Not all species and casts of termites are white, and no termite is a true ant. While it is true that the vast majority of the individuals of the colonies of the termites are white, these are not usually visible unless dug out of their burrows in wood or earth. Other individuals of the same species, the winged form called "*alates*", have dark, even black bodies, and usually dark wings. These are to be seen flying or emerging from wooden structures or the earth for a few hours only at the swarming season.

On the Pacific Coast the *alates* appear in the colonies during the summer, and swarm after the first autumn rains. A less important swarming occurs in the spring. The western subterranean termites may confidently be expected to swarm in great numbers between 10 a.m. and 3 p.m. over wide areas on the first warm clear day after the first rain of the autumn. At the time of swarming their bodies and wings are to be found on every hand. They are often mistaken for flying ants at swarming time. A close inspection at such a time will usually disclose the presence of subterranean termites in buildings or structures or nesting in the ground nearby.

The swarming season of the dry-wood termites usually begins about July and continues intermittently through the fall months, increasing somewhat in number until middle or late October, when the peak of the swarm occurs. Sporadic flights follow the peak of the swarm.

Termites fall into two major habit types: wood-dwelling termites and earth-dwelling termites. Wood-dwelling termite colonies are found in the wood itself. The majority of this type attack only dry sound wood; they are known as dry-wood termites and are confined to the coastal and southern states. Others, known as damp-wood termites, are found in damp and decaying wood; they are largely confined to the Pacific Coast. Earth-dwelling termites are of several different types, and the group that is the most economically important is known as subterranean termites. They live in the earth and feed upon wood placed in or on the ground. Occasionally they attack wood placed away from ground contact by building tubes or covered runways to it from their galleries in the ground. They are widespread and responsible for by far the greater part of the damage done.

Termites and wood-boring beetles accomplish a unique function among insects in the scheme of nature by their assistance in returning wood to the air and soil, from whose chemical constituents it took its origin. Associated with termites in this biological scheme of returning to the soil and air the constituents of the cellulose created by photosynthesis, are the fungi which grow in the wood, some of which are responsible for its decay. The spores of wood-destroying fungi and other fungi on which the termites depend for the nitrogenous elements in their food, are widely distributed in nature. The condition favorable for termites are also favorable for fungi, and hence these two organisms are very commonly found in close association.



Dry wood termites in wood lathe laid on roofing felt tunneled through the lathe into the wooden sheathing

Control Measures

The widespread infestation of existing structures is designed to increase further the damage now being done to these structures by these insects. The property owner vaguely understands the problems involved and calls upon a termite control operator to apply the remedy. Many of these operators are using arsenic in some form in their control measures. The Termite Investigations Committee "recommends that arsenical preservatives be not used in the treatment of wood, wallboard, building paper, or other material used in dwellings or structures accessible to man, or in or on soil underneath such structures, as a treatment against termites. The arsenic compounds used as preservatives are all highly toxic to man and also present a toxic fume hazard in case of fire. Furthermore, termites and their burrows are universally infested by fungi, including many common molds. Fungi are also abundant in the soil in which termites live. A number of these fungi turn arsenical compounds into a volatile form, which diffuses through the air and slowly poisons persons breathing it."

Left: A colony of dry wood termites in the butt of a cedar pole in a southern California pole yard. Center: Damp wood termites are responsible for the damage to this pole and its consequent shortened useful life. Right: The effect of damp wood termite infestation of power pole in the Northwest

*The Termite Investigations Committee, 461 Market Street, San Francisco, is a cooperative enterprise financed by leading industrial corporations, public utilities, and lumber associations. The studies of the committee have been directed by an advisory council consisting of members of the faculty of the University of California at Berkeley, appointed by the President of the University. Approximately $60,000 has been expended upon the work. The final report in book form, Charles A. Kofoid, Editor-in-Chief, was published in January, 1934, by the University of California Press. A second edition revised to include the latest studies is now being printed. The author is chairman of the Committee.

Ground dwelling termites in a wooden block left in the concrete wall during construction, emerged through the block and built this tower to reach the wooden structure above

The use of arsenic provides an economic and easy method of preserving wood and its products against ravages by termites, but arsenic is so injurious to health that the Food and Drug Administration forbids the presence of more than 1/700,000 of a pound of arsenic per pound of fruit. The workers involved in the treatment of lumber with arsenicals and handling wood saturated with a solution of arsenic are subjected to its injurious effects. The question to consider is not how much of this poisonous material can be used before acute or obvious chronic symptoms are produced, but how is it possible to safeguard man against absorbing even a trace of the poison.

It is not necessary to resort to the use of arsenic to combat termites as other preservatives not injurious to man are available. Crude coal-tar creosote has long been accepted as a standard for the preservation of wood against decay and insect damage. Recently, after years of research in the refinement of creosote, the Reilly Laboratories, Indianapolis, developed Reilly transparent penetrating creosote, a blended creosote oil of remarkable penetrating properties, which marks a distinct advance in wood preservation. The treated wood is unchanged in color, it is dry, not oily, can be painted in any desired color, and the treated wood is non-irritant. This refined creosote was found by Professor Charles A. Kofoid to afford complete protection against termites. Samples treated by pressure with 6.64, 7.16, and 9.00 lb. per cu. ft. respectively were toxic to insects.

Electrical resistance tests conducted by the Chicago Surface Lines of wood treated with a 12-lb. treatment of the refined creosote show:

(1) Insulation resistance when dry. Wood treated with this transparent penetrating creosote showed infinite resistance when dry. Samples treated with ordinary black creosote showed infinite resistance over a 10-in. path and 193-223 megohms over a 1-in. path.

(2) Insulation resistance when wet. Electrical resistance of wood treated with Reilly transparent penetrating creosote when wet shows about 35 per cent higher resistance than wood treated with the ordinary creosote oil.

(3) Insulation resistance with increase in temperature. The resistance reducing effect of an increase in temperature was considerably greater for the wood treated with black creosote than for the wood treated with the refined product. On cooling, a longer time is required for the resistance to return to its original value in the case of wood treated with the black creosote than in the case of wood treated with the refined.

Poles treated with crude creosote are satisfactory for use in most places; there are, however, instances where poles so treated are undesirable. Because of the objection to the color and oiliness which crude creosote imparts to the wood, untreated poles have been used in certain instances. The development of the refined creosote makes possible creosoted poles protected against termites and decay which are free from the objectionable features of those treated with black creosote.

New Process Makes Spray Treatment Effective

Not only has the refined creosote made available a new type of creosoted pole, but it has also produced a new method of treating poles. The remarkable penetrating property of the new creosote enables the poles to be treated anywhere by the average workman. Because of the sapwood always present and the rapid penetration of the preservative, it is possible to protect poles against decay and insect attack by spraying them with it. Any type of spray equipment can be used.

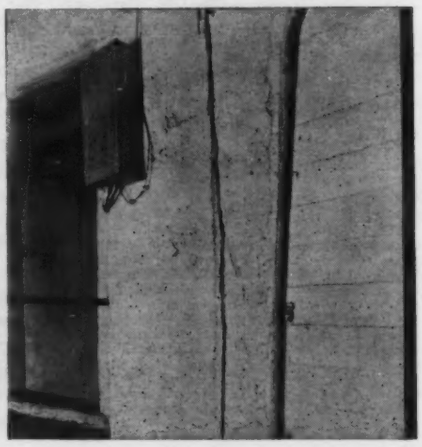
In treating poles by spraying, the pole is given repeated applications until the rate of absorption of the oil becomes very slow. The quantity of preservative which will be required to treat a pole by this method will depend to a great extent upon the nature of the wood and the size of the pole. Where a treating tank is available, much time can be saved by dipping the poles instead of spraying them. The spray method of treatment can be used in places where the usual open tank method is not available.

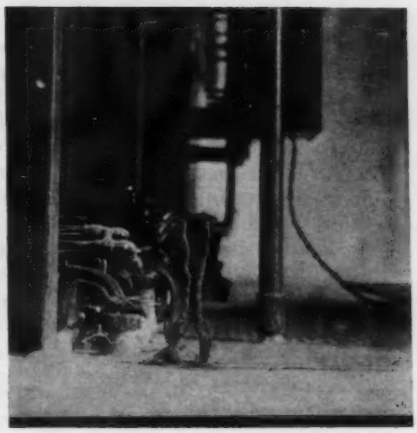
At one time a famous automobile manufacturer used to say that you could have any color car you wished so long as it was black. That has been the condition until recently in the creosote industry. Any desired color can be added to the new oil before treatment, thus making available creosoted poles, cross arms, pins, etc., in any desired color. The development of this new creosote oil is probably the forerunner of revolutionary changes to take place in the wood preserving industry.

Because the damage caused by subterranean termites has been more widespread than that attributed to the dry wood species, control measures for the former have been devised and generally adopted. Many cities now have building ordinances requiring all lumber used in the underpinning to be treated with an approved preservative. The way is still open, however, for the ground dwelling termites to build covered runways (see illustration) over creosoted underpinning to the untreated wood above the first floor joists or to the untreated wood of a pole above the treated butt. In buildings, the Termite Investigating Committee recommends that a termite barrier of pressure-treated shiplap tongue and groove lumber be constructed as a sub-floor and all lumber below this barrier be pressure treated.

The termite barrier designed to prevent damage by termites from the soil will not provide protection against the dry-wood termites. In describing the establishment of dry-wood termite colonies, Paul A. Harvey, field biologist for the Termite Investigations Committee, says that checks with a maximum gap of 1/8-in. and a maximum depth of about 1-in. appear to be most favored

An exploratory tube 14 ft. long built by termites up a concrete wall in search for the wood necessary to their existence





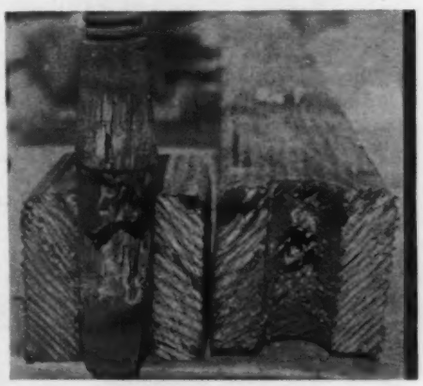
Exploratory tube built by ground dwelling termites which have emerged through a crack of the concrete floor of a substation

by colonizing pairs of *Kalotermes minor* in entering poles. Another natural path of infestation in poles by the common dry-wood termite is by way of knots, particularly if the knots are broken or cracked, although even then knots are less favored than checks. Incidental paths are mainly crevices about the crossarm, and it is because of them that the top of the pole is favored as a path of infestation.

However, while the data that have been collected in connection with swarming indicate that the top of a pole is subjected to contact of more flying individuals than any other part, pole dissections show that separate colonies become established in the lower part of the pole about as frequently as in the top. Infestation in the crossarm or in the body of a pole near the top may result from entrance of reproductives about the grain through checks or cracks in the crossarm, as well as through checks or cracks in the pole top itself.

Spur marks afford another incidental path for infestation particularly favorable for low-flying individuals. These alight on the lower part of the pole, mate, and seek an entrance where spur marks are most abundant. One pole in San Diego for example, in place less than a month, was found to have signs of entry in each spur mark within reach of the ground.

Damage to crossarms and pins caused by dry wood termites



Butt treatment of poles provides protection against ground dwelling termites but full length treatment of poles and treatment of crossarms and pins is necessary to prevent damage by the dry-wood termites. This is because of their ability to create and maintain a high humidity in their burrows with the aid of the moisture of metabolism and of the wood which enables them to invade dry-wood independently of ground connections.

Discussing termite behavior, one of the committee's investigators reports that a single Douglas fir unseasoned and fragrant 2x8-in. timber lying among others on top of a load of similar pieces at a building site in a southern California village at the height of the swarming season of *Kalotermes minor* (dry-wood termites) had no less than fourteen pairs of reproductives dug in and sealed in within twelve hours. The superintendent of the building department of a southern California city recently stated that his available information showed that, while 90 per cent of the damage caused by termites five years ago was due to subterranean termites, the dry-wood termites are now responsible for about 50 per cent of the cost of repairs due to ravages by these insects.

There is no possibility of eradicating termites. They have existed for millions of years and will continue to exist despite anything man can do about it but their major damage can be controlled. Wood is the material best suited for homes in an earthquake country. It is economical to use and it lends itself to the hand of the craftsman and to the human needs of change. It can be safely used in the face of the termite menace. In a well-built city controlled by a proper building code, termite danger will be reduced, the spread of infestation will be checked, home investments conserved and the earthquake hazard reduced.

The growth of the termite problem has now reached such proportions that measures for the control and prevention of damage by these insects are necessary, it provides at once an opportunity and a challenge to the genius of the wood preserving industry. The constructive answer is not to be had by methods that prevent an economic loss by creating a human hazard as is the case when the arsenicals are used. The record established by one of our commercial research laboratories in developing new methods of combating these insects will no doubt give added impetus to the constructive elements of the industry.

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Field Experience With Termites As Reported by Utilities

IN AN effort to determine how important the termite problem is considered by Utility operating men, ELECTRICAL WEST asked the overhead departments of representative companies in the West the following questions:

1. Is the damage caused to distribution structures by both damp wood and dry wood termites extensive in your territory?

2. Have you experienced crossarm or pin failures directly attributable to termite infestation?

3. Do you make any periodic inspections of pole tops and crossarms to determine to what extent, if any, termite infestation might have progressed?

4. Have you evolved any methods for arresting infestation in poles and crossarms after they have been found to be infested?

5. Do you make it a practice to fully treat poles, crossarms and pins before erection?

Operating experience as reported indicates that practice varies and that termite damage appears to be more prevalent in certain areas than in others.

A. S. GLASCOW, San Diego Consolidated Gas & Electric Co., says:

"The following answers are submitted in response to your inquiry.

"1. Extensive damage is caused by dry wood termites, very little by the true damp wood termite and a considerable amount by subterranean termites.

"2. Yes, in numerous cases.

"3. Yes. Inspectors have now been working more than two years to determine which poles are infected and to apply such remedies as may be found effective.

"4. Crossarms if well painted before installation seem to resist termites. No treatment has yet been applied to pins. Poles found infested, if still sound enough at the butt, are treated with dry paris green by boring holes about 3 in.

deep at intervals of from 2 to 3 ft. from ground line to pole top. Four holes, diameter about 3/8 or 7/16 in., are bored at each interval, dry Paris green is inserted by a blow gun and the holes are plugged. This treatment is about 95 per cent efficient and appears to have a 5-year life. The following excerpt from a recent report may be interesting:

" 'The effectiveness of our standard Paris green treatment against sound wood termites (Kalotermes minor) can best be demonstrated by data obtained from inspections of the 29 poles retired and hauled in to 32nd St. yard during the past nine months, which had been previously treated with Paris green. A summary of these inspections shows the following:

" '18 poles (62 per cent) examined showed a 100 per cent kill.

" '7 poles (24 per cent) contained scattered pairs of sickly looking alates (reproductives), but apparently all of the nymphs (workers) had been killed.

" '4 poles (14 per cent) contained small isolated colonies, which had not yet contacted the Paris green.

" 'An examination of poisoned poles, which had infestation in the entire area of the trunks prior to treatment, showed the Paris green treatment to be about 95 per cent effective. These figures do not apply to poles which were slightly or sparsely infested. The efficacy of the Paris green treatment depends upon actual injection of the poison into active galleries, or else by the termites tunneling into one of the poisoned holes. For this reason, it is slower and more difficult to kill scattered and isolated colonies with Paris green than with penetrating substances, such as creosote.'

"5. We have about 150 full length creosote treated poles in service as an experiment, but will not be able to get any results for several years. Our standard treatment of poles consists only in open tank creosoting of butts which seems to resist subterranean termites for the useful life of the pole. Arms are well painted. Pins are not painted or treated but experience indicates the need of some kind of treatment."

H. R. WAKEMAN, Portland General Electric Co., answers the questions as follows:

"1. As far as we know in this territory we have no evidence of dry wood termites. Of recent years, we have found quite a number of our poles infested with the damp wood type of termites, but we hardly believe we would class the damage as 'extensive.'

"2. No.

"3. No.

"4. No.

"5. To a very large extent, this company is buying poles tank-treated with creosote where the butts have been incised or punctured, but we are not treating our crossarms in any manner. As far as pins are concerned, we are using no wood pins."

H. L. CALDWELL, Los Angeles Bureau of Power and Light comments as follows:

"Regarding our experience with termites, I offer the following information:

"1. Damage caused to distribution structures by damp wood and dry wood termites is not extensive, but a large percentage of the poles in place over ten years are infested with dry wood termites.

"2. We have never, to my knowledge, had a crossarm failure and only one or two pin failures directly attributable to termite infestation.

"3. We do not make a periodic, systematic inspection of pole tops and crossarms.

"4. Several methods have been tried to impregnate the tops of poles with different poisons, but the infested poles have been removed for other causes before termite damage became serious.

"5. We have always purchased butt-treated poles, and during the last six years have purchased from 60 per cent to 70 per cent full-length treated poles. This probably accounts for the small amount of damage that has resulted from termites.

"A careful record has been kept of all poles removed and, while a large percentage of such poles were infested, only a small number were removed because of weakened structures due to termite damage."

A J. TURNER, The Washington Water Power Co., says:

"Our experience in regard to damage to distribution structures by termites is as follows:

"1. The damage caused to distribution structures in our territory is very slight. The species of termite which we have encountered is the subterranean type or the damp wood termite. So far as we are able to determine we have never had any damage created due to the non-subterranean termite or the dry wood species.

"2. The answer to question No. 2 is really covered in our answer to question No. 1. Since there are apparently no dry wood termites in this section, we have never experienced crossarm or pin failures from termite infection.

"3. Since we do not have any failure of pole tops and crossarms due to termite infestation, we have not found it necessary to make periodic inspections. However, after structures have been in service for more than 20 years inspection of pole tops and crossarms is made because there are certain areas where we might expect to find rot.

"4. As there is no dry wood type of termite in this area, it has not been necessary for us to evolve any methods of arresting any infestation which may be caused by them.

"5. The fact that we are not troubled with the dry wood type of termites has not made it necessary for us to fully treat poles, crossarms and pins."

H. M. JONES, Idaho Power Company, says:

"Our answer to each of your five questions is no. We have never experienced any pole, crossarm, or pin troubles on our system due to termites. About two years ago we found a few termites infesting the rotted butt of an old untreated native pole which we were removing. These were of the damp wood type and are the only ones which have ever come to our attention in connection with our pole plant. We do not anticipate any trouble on our poles due to the fact that we use only butt treated poles with guaranteed 3/8-in. penetration.

"There have been a few cases of damage to building floors and floor joists from termites which have been reported from time to time in this territory. One case occurred a few years ago here in Boise, where the oak flooring in a house became infested to such an extent that a portion of the floor had to be replaced."

C. R. HIGSON, Utah Power & Light Co., says:

"Regarding our experience particularly with the dry wood termite in this intermountain territory:

"1. Damage caused by damp wood or dry wood termites in this intermountain territory is not extensive. We have discovered some damage caused by subterranean termites in particular locations but the damage is very limited up to the present time.

"2. In this territory we have experienced no instance where a crossarm or a pin has failed because of termite infestation.

"3. We have made no periodic inspections of pole tops or crossarms to determine the extent of termite infestation because of the fact that we have experienced no damage up to the present time.

"4. We have not attempted any methods of arresting infestation. We understand, however, that one of the leading creosote manufacturing companies has developed a highly toxic penetrating creosote that can be applied by spray or brush methods that will protect wood against such wood infestation.

"5. In this territory we treat poles to a point one foot above the ground line by the open tank method. We use Lodgepole pine poles cut in this territory. These poles are treated locally by the open tank process. The butts are immersed in creosote bath which is kept hot for four hours and then allowed to cool for a period of from six to eight hours, resulting in a penetration of approximately one inch. We have not found it necessary, up to this time, to treat poles in any way above the ground line."

A. F. HARRIS, Southern California Edison Co., Ltd., says:

"The damage to untreated pole line structures in this territory caused by both subterranean and dry-wood termites is extensive. With the advent of the butt treatment of poles, using creosote, more than twenty years ago, and the improvements which have been made in that process, the damage to pole lines due to subterranean termites and decay has been practically eliminated from the lines so treated. More recently, the adoption of full length creosoted poles, and creosoted crossarms and pins has eliminated the damage due to dry-wood termites in the above-ground portions of the structures so treated. This latter method has been the practice of this company for several years.

"The older structures, those which were installed without complete creosote treatment, are the only ones in which termite damage is of importance and even in these it is practically always the inadequacy of the structure rather than termite damage that causes its removal. There have been no cases of pole top or crossarm failures due to the attacks of drywood termites although a few insulator pins have failed from that cause.

"No periodic inspections of pole tops and crossarms are made to determine the extent of termite damage and no method of treating infested poles and crossarms in place has been generally adopted. In special cases the method of blowing dry Paris green into the termite runways is used. This method is believed to be quite effective where the infestation is sufficiently advanced to permit the intersection of the runways without boring too many holes.

When all the untreated structures, or parts of structures, have lived their lives and have been replaced by treated material, the problem of termite damage to pole lines will have been eliminated."

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Crude Oil Structure May Affect Insulating Value*

By DELMAR L. BROWN
Chemist, Portland General Electric Co.

IN general, it appears that Mr. Knopp is out to find useful facts and has laid out his course by arranging tests to show the separate effects of the variout factors under suspicion.

Although our company has had considerable experience in cleaning and reclaiming used transformer oils, none of this experience has led to any conclusions concerning the effect of various factors causing oil sludging. In our entire system no two transformers operate under identical conditions, and it has, therefore, been impossible to draw conclusions concerning the effects of various transformer materials and conditions from field studies. In fact, conditions of operation in the field vary so widely that not even general ideas of the effects of different varnishes, etc., may be gained. For this reason it is apparent that laboratory tests under identical conditions will have far more value than observation of conditions in practice.

Of all the tests reported by Mr. Knopp, it appears that those having the least value are comparative tests on different oils. This opinion seems to be substantiated by the test results appearing in Table III of the discussion which indicate that no one brand of oil is consistently the best under all conditions of test, and that the differences in sludge deposits are not appreciable in some of the tests.

Although the present methods of testing permit the refiner to deliver a fairly uniform product, differences in the crude oil used and variations in the refining process are very likely to cause differences in the ability of the oil to resist chemical deterioration or sludging. Therefore, it appears that slight differences in favor of one brand of oil in one set of tests are not conclusive evidence that this brand will be the best oil in tests conducted on a later shipment.

It appears that the aim of the investigators attempting to discover the best insulating oil should be to compare oils according to the crude and method of refining rather than to compare meaningless brand names. Crude oils, from which insulating oils are obtained by refining, are some of the most complicated chemical substances found in nature. Although modern chemistry has gone a long way in discovering the general characteristics and composition of oil, it is not yet possible to examine the structure of oil and determine all the chemical combinations present which are susceptible to oxidation or sludging.

For this reason it is impossible to evaluate an insulating oil by chemical analysis, and both the refiner and the user must judge quality by the performance of the oil.

Crude oils from different wells and different fields vary widely in chemical and physical characteristics. Variations in the crude oil and in the reactions during refining influence the quality of the product in spite of the efforts of the refiner to produce a uniform oil, and it is, therefore, unreasonable to expect results within very narrow limits.

*Further discussion of the article "Sludge Formation In Insulating Oil" by Otto A. Knopp published in October, 1934, issue of Electrical West.

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High Voltage Laboratory Will Aid Operating Studies

Facilities for impulse, coordination, protection and grounding studies up to 3,000,000 volts incorporated in the new high voltage laboratory of the Ohio Brass Co. at Barberton, Ohio, have been placed at the disposal of the utilities according to an announcement recently made by that company. Designed to expedite tests on finished bushings and insulators as well as designs in developmental stages, the new laboratory is arranged for both indoor and outdoor testing. In the indoor laboratory, a new helically-arranged impulse generator will make possible impulse testing up to 2,000,000 volts. Tests at 25, 50 and 60 cycles at voltages up to 1,250,000 are possible from a cascade connection of three 750-kv. transformers. A 750-kv. high frequency generator also permits insulation testing at frequencies between 50,000 and 100,000 cycles.

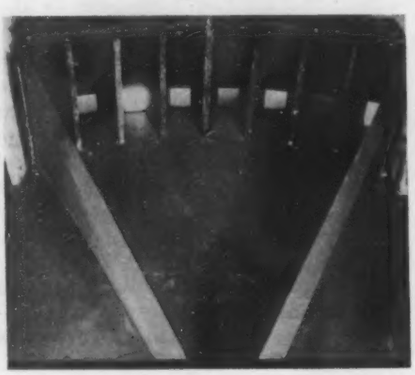
Outdoor testing is made with the impulse generator which is mounted on tracks to facilitate movement and to which is added a supplementary stack which brings its output up to 3,000,000 volts. The outdoor laboratory is also equipped with tracks and cars upon which are mounted the typical structures used or contemplated for line supports. These can be moved into position for application of either a 3,000,000-volt impulse test or a 2,000,000-volt test at commercial frequencies. Not only does the new laboratory provide facilities for broader research into electrical insulation but also it will permit utility operating department to investigate with great accuracy the characteristics of proposed line supports and the problems of transmission line rehabilitation.

Electrocuting Insects

REACTION of insects to various light intensities and colors has resulted in the development of a wide variety of insect electrocutors or "bug traps" which use light as lures. Commercial possibilities of apparatus of this type, if practicable and successful, are vast, but so also is the destructive power, since beneficial as well as injurious insects meet the same fate. Hence untested and unproved equipment may do more harm than good.

Exhaustive tests on this subject have been conducted cooperatively since 1928 by the California Committee on the Relation of Electricity to Agriculture and the University of California under the direction of Dr. W. B. Herms, Professor of Parasitology, assisted by Joe K. Ellsworth. These studies began with research on insect reaction to monochromatic light using equipment designed by Dr. Herms. They finally resulted in the perfection of lighting equipment which has been subjected to field tests under various conditions for the past three years. Tests are being continued through 1934 and well into 1935 and upon their conclusion, it is believed that a major contribution to scientific agriculture and rural electrification will be made. Shortly Electrical West will publish results of tests of this new lighting equipment in artichoke fields, dry yards, dried fruit warehouses as well as in vineyards.

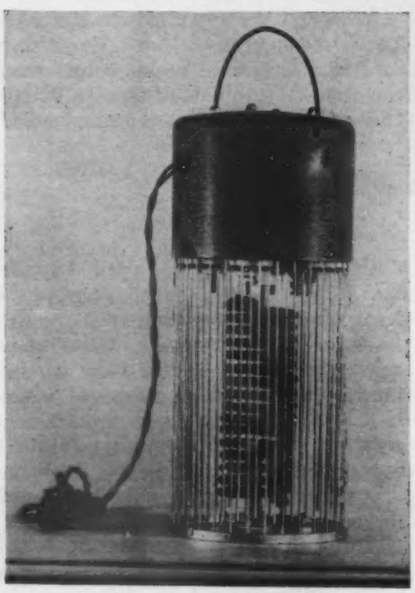
Speaking of the significance of these experiments, Dr. Herms says:*



In this laboratory equipment insects are released in the V-shaped runway in the foreground and are attracted to one of the lighted slots in the background each of which is of a different color All experiments started here

"With the increasing vigor with which food and drug administrations and health authorities are enforcing government regulations pertaining to dangerous chemical residue on fruits and vegetables, entomologists must give more attention to the control of insects and related pests by means other than chemicals toxic to human beings....

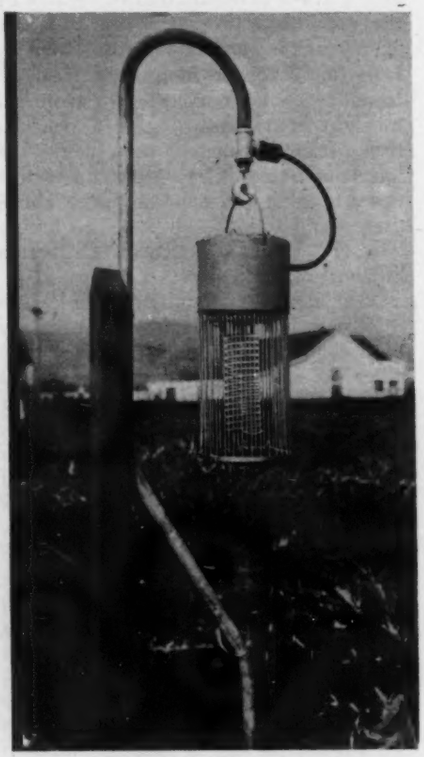
"The entomologist is usually called upon for quick action and his first thought is a toxic chemical spray or dust, just as the first thought of the soldier is his rifle and machine gun. In both cases the first waves of the invading enemy are usually checked,



Most recent design of the "Monolite" electrocutor, gaseous tube light source with a charged grid surrounding it. A transformer is located in the hood. This light was evolved by Dr. Herms, Mr. Ellsworth and Dr. L. T. Jones of the Electrical Products Corp.

but as the persistent hordes of the invaders continue to advance, other means of control must be put into use—these are usually supplemental, but may actually become of primary importance. These supplemental, though potentially primary, methods of control are usually the result of long years of research including an intensive study of the enemy's habits and ways of living.

"We wish today to emphasize only one of these supplemental, though potentially powerful weapons in the battle against our insect enemies, namely, light and particularly colored light."



One of the ten "Monolites" installed in an artichoke field near Halfmoon Bay, Calif. Tellurium cable is used for the underground distribution system

To date Dr. Herms' tests have included experiments with the codling moth, artichoke plume moth, grape leafhopper, Clear Lake gnat, dried fruit insects and mushroom pests. Field tests have been conducted on the control of all of these parasites. In addition, laboratory tests have been under way to determine the reaction to light of other species. The laboratory equipment at the University of California will provide facilities second to none in the United States with the contemplated addition of a Christiansen monochromator this winter. This will permit color purification to a far greater degree.

Discussing the tests, Dr. Herms says*:

"We trust that the experimental nature of this investigation is fully realized. Even in the case of the most promising tests, we are not recommending the use of light traps of appropriate color intensity, except as perhaps a supplemental measure."

*Journal of Economic Entomology, October 1934.

Business Building Brainstorms + + +

[*What the Industry needs is a brainstorm to destroy the power surplus pest—Arthur Markwart, president, P.C.E.A.*]

Lighting Promotion by the Fixture House*

TWENTY-FIVE years ago the automobile was relatively young. All models were fashioned from horse-and-buggy styles in vogue at that time. Some of the earlier models even retained a useless whip-socket as an ornament. But automotive engineers were active—the motors were constantly being improved and carriage designers kept pace with the engineers.

At that same time the incandescent lamp was also new and inefficient. Fixture manufacturers had made minor changes in their oil, gas, and candle luminaires in order to utilize the new lamp in home lighting fixtures. The luminaires unfortunately retained their "whip socket" chimneys and candle stems.

Engineers worked constantly and developed the efficient, inexpensive lamp we know today. Unfortunately, however, fixture designs have been less progressive. This failure cannot be attributed altogether to the designers but rather to the fixture jobbers and dealers. A number of enterprising manufacturers have been bold enough to discard old conventional designs and offer models in keeping with the times. The dealers, however, have made little effort to actually promote sales of these fixtures but always show the customer some slightly-changed version of a candle or chimney fixture and describe it as the "latest creation."

This "latest creation" often so closely resembles the old fixture which the customer longs to replace that one frequently hears the remark, "Well our old fixtures are not so out-of-date after all; I guess we can use them a few years longer." Thus, many sales are lost each year and the advantages of good illumination are unknowingly lost.

At this point the reader will undoubtedly ask, "Well, what can be done to improve this condition?"

(1) The most important step forward would be a general training of the salesmen in the fundamentals of illumination. This might easily be accomplished by the jobbers' and dealers' cooperation with the local chapters of the Illuminating Engineering Society. This group is active in almost every large city and is always anxious to cooperate in such work.

(2) The second step would be a more intensive training of at least one member of the concern who would act as a lighting specialist. To this man would be referred all specialized problems which might arise. He would also cooperate with engineers and architects in designing more involved installations. It would be the concern of this member to keep his fellow salesmen well informed as to new developments and advances in the lighting profession which might be of value to them in their sales efforts.

(3) The third step would be to equip a small section of the show room as a miniature "Lighting Institute" wherein the principles of good illumination might be demonstrated to the consumer.

This room should be equipped with a sight-meter and properly chosen luminaires to present a comparison of good and bad lighting. Certain specialized equipment such as daylight units might also be shown to advantage. A small exhibit designed to emphasize the desirability of proper voltage conditions and correct choice of lamps would certainly be of value. This demonstration room idea is an old one with lamp manufacturers and power dealers but has rarely been used by fixture men.

(4) The fourth step would be a plan, again borrowed from the progressive automobile industry. In buying a used car a certificate is often given the purchaser which shows that the car has been thoroughly checked for accuracy and soundness of its vital parts. That is, Brakes — O.K., Steering Mechanism — O.K., Motor — O.K., Tires — O.K., etc. The same principle might be applied to every lighting installation. That is, some plan might be devised whereby each job would be checked to assure its compliance with modern lighting standards.

(5) The final step in the plan would be an advertising campaign to inform the public that the company was offering this new lighting service. The subdealers would be urged by a form letter to take advantage of the service and request the help of the lighting specialist in designing his installations.

WM. ARMSTRONG.

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* *Editors Note: While the Brainstorm above is longer than required according to the terms of this feature contest, it contains so many constructive ideas that it is printed in full for the benefit of lighting equipment dealers and jobbers, and to describe ways in which the Better Light-Better Sight program may be applied by the individual dealer or jobber to increase business and sell satisfactory and correct lighting.*

$50 Reward for Brainstorms

Fifty dollars in awards to those Davids who have the best brainstorm for destroying the Goliath, surplus power, that is pestering the electrical industry!

This offer has been made by the Pacific Coast Electrical Assn. for the three best real business building ideas published in ELECTRICAL WEST during the six months October 1, 1934 to April 1, 1935. Ideas will be judged by a committee composed of the president of the association, the chairman of the Business Development and Operating Economics Sections and the Editor of ELECTRICAL WEST. The opinion of the committee will be final in awarding $25 for the best idea submitted, $15 for the next best and $10 for the third best. In addition ELECTRICAL WEST will pay $2.50 for each idea considered worthy of publication by the editors.

Suggestions preferably should be under 400 words, may be published under *nom de plume*, and should be sent to the Editor, ELECTRICAL WEST, 883 Mission St., San Francisco, Calif.

Bill Jones Speaks + + +

to the Junior Salesmen

Bill Jones is in his element. In some manner, mysterious to all who are participating, he has fenagled the Sales Manager into inviting him to address the junior salesmen. That Bill knows something about selling is evident from his style. Bill has sold and has been sold.

A LOT of salesmen are still tiring prospective customers with their efforts to sell them ranges, water heaters and all other kinds of junk, instead of selling them pictures. The only way we think is in moving pictures flashed on our brains by suggestion, colored and amplified by our own imaginations. No one buys luxuries—ever. They *do buy the sensation* associated with mental pictures of those luxuries.

This association of ideas is very potent. For example, your neighbor has a dog which reflects its owner's estimate of your character by avoiding you when he meets you. One day your neighbor takes his family, goes down town and leaves the dog asleep and chained in the back yard. No one seems to be looking, so you hop over the fence, sneak upon him and give him a couple of good kicks in the slats before he awakes and finds the chain is just too short.

The next day or the next year you meet that dog walking with his master and you are very friendly, perhaps even affectionate. But if the cur deigns to notice you at all, he growls and shows his teeth. Why? Our old friend Cause and Effect which a couple of hundred Legislatures and a couple of dozen Supreme Courts and other Brain Trusters have not succeeded thus far in repealing. Your voice and your attitude were friendly enough, but in that dog's mind you were associated with those two kicks and that too short chain.

Jim Smith does not know one tune from another. To him music is a fearful bore. When the band plays "That's My Baby", he stands up. Mrs. Smith is devoted to her housewifely duties and would far rather remain at home in the evening darning socks than listen to the best symphony orchestra in the world. A mere peddler, who simply sells devices and appliances, would say there isn't much chance of selling a piano to the Smiths, but a salesman, a really constructive salesman, who deals in pictures rather than inanimate objects, would instantly recognize the fact that Jim Smith constitutes the best prospect in the block.

Only he wouldn't tell Jim much about the marvellously responsive key action of his instrument and wouldn't weary him with photographs of the massive factory which built the piano, and wouldn't dilate at length on its singing, resonant tone, and merely touch upon its hand-rubbed, polished rosewood case. What he would do would be to create in Jim's mind a picture and vision of his daughter—Jim's little daughter—an accomplished musician receiving the plaudits of the multitude, with Jim and Mrs. Jim in the background drinking it all in. And Jim Smith would jerk his sock clad feet down off the front veranda rail, knock the ashes out of his pipe and beam all over in anticipation of the pleasure he is going to get. Out of the piano? Heavens, no! Out of the things that piano will do for his little girl.

A man who buys a fishing rod and fly book and plans weeks ahead, goes out into the back yard and scatters coffee grounds, and digs worms, is not really absorbed in gaining a collection of worms and bits of colored feather tied to bent wires. What he is enjoying in contemplation is a trip into the country on a beautiful Spring day, the noisy babble of the brook, the welcome shade of the trees, the congenial companionship, the hearty appetite and the glories of a day in the open. That sporting goods house didn't sell him a rod and a fly book. It sold him an enchanted picture of contentment painted by his own imagination.

I have always had a keen desire to try an experiment of selling dolls to grown-up men. Possibly at this moment very few of you are languishing or pining away because you don't have a personal doll for your own comfort, and quite likely I would not increase your desire very much if I told you that my dolls have real hair, eyes that open and close, and can cry. But I am not so sure but what I would interest you if I could paint a picture on your mind associated with the sparkling eyes, the joyous giggle, the clapping hands, the dancing feet and the ecstacy which would come to some little girl of your acquaintance if you bought one of my dolls for her; for then, you see, my poor little assembly of hair, clay and rags would suddenly be transformed into a gateway to Fairyland.

Oh yes, you say, but all of this is obvious. True, but the rarest thing on earth today is timely recognition of the obvious.

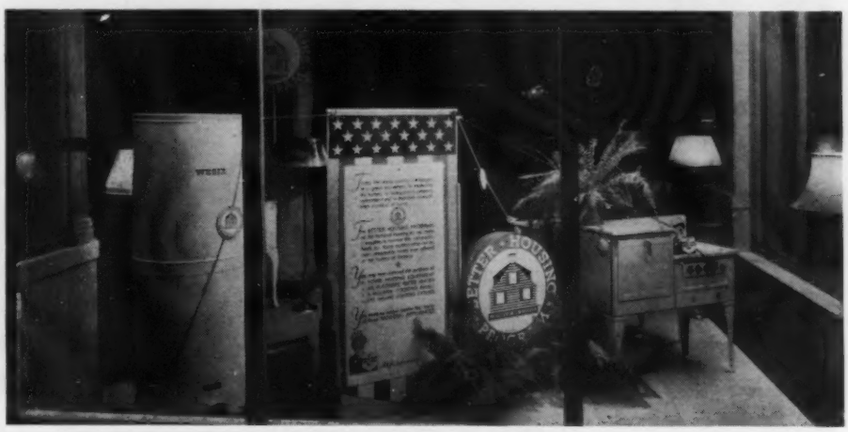
Try some of this picture-painting on your next prospect for an electric range or refrigerator. Mechanisms, elements, hinges, porcelain enamel and all the rest are fine. But the housewife wants to buy a picture of herself serving an appetizing cold salad and winning the plaudits of her luncheon guests. Or a picture of the prideful look of friend husband as he slips the carving knife under a savory slice of roast beef before passing the plate to the old friend from out of town who has come to the house for dinner.

You do not see the smart advertiser of canned goods wasting his valuable Satevpost space going into details of the kind of tin he uses, number of degrees F. at which he sterilizes the product, or other such interesting, no doubt, but irrelevant details. No sir, he dishes it up in a lovely piece of china, sets it on a fine tablecloth, and you can fairly smell and taste it right in front of you.

How do I know? Well I have run up against some of those kind of salesmen and have been sold.

Cooperation on Parade + + +

[*Forecast of forthcoming cooperative merchandising activities, and review of activities in progress or completed, a summary of cooperation at work throughout the West*]



Typical of the "Better Housing" window displays in P.G. and E. offices was this in Sacramento, showing range and water heater which are approved for loan sales under the program rules

Rate Gift Will Stimulate Christmas Selling Drive

COMING just before the Christmas buying season, announcement of a trade-stimulating rate reduction inducement offer by Pacific Gas and Electric Co., San Joaquin Light & Power Corp., and Midland Counties Public Service Corp. will offer every aggressive dealer an opportunity to make electric appliance sales appeals which cannot help but produce sales results.

"Merchants have often stated that a most effective sales inducement would be to give a purchaser a certain amount of free electricity to operate the appliances which she purchased," said R. E. Fisher, vice-president in charge of public relations and sales. "In suggesting this kind of sales inducement, merchants have stated it would be so effective that they could feature profitably the inducement and devote more time, attention, sales effort and advertising to electrical appliances.

"The Pacific Gas and Electric Co. is not only making such an offer a reality but is using every means at its disposal to publicize it."

The new rate offer, filed with the railroad Commission, briefly stated is as follows. *For a period of one year the company will deduct from the bills of domestic and commercial lighting consumers a discount of 50 per cent of the amount by which the bill for electric service for any month, at the same location, exceeds the amount of the bill for the corresponding month of the previous year.*

To publicize and dramatize this rate offer to the consumers, colorful display cards are to be supplied to dealers to use in their windows and on their floors. Prominent newspaper advertising is being used. It is written in such a way that dealers may tie their copy with it. Meetings are being held with retailers in every section of the company's territory to stimulate dealer campaigns and store efforts along the same lines.

From the dealer's standpoint the offer has another striking feature in that he can improve his own store and window lighting at half the cost for all energy used in excess of his bill for the previous year.

In making this offer, the company points out that it has a surplus of electricity with which it can help the industry and its consumers in the following ways:

1. Make the purchase of additional electric equipment more attractive by lowering the cost of electricity that such equipment will use.
2. Cooperate with public authorities in promoting the objectives of the National Housing Act.
3. To relieve consumers from the feeling that they must use electricity sparingly. To give them the opportunity of enjoying to the fullest extent the comforts and conveniences of electric service.
4. As the general level of electric rates is determined to a large extent by the liberality with which consumers use electricity, it is the hope of the company, and its expectation, that this offer will so stimulate electric use as to justify a reduction in regular schedules.

This statement was made to the press by Paul M. Downing, vice-president and general manager, and for the San Joaquin system by A. Emory Wishon, president of that corporation.

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ELECTRICAL LEAGUE OF COLORADO is particularly active these days: Advertising aggressively in Denver newspapers to promote electrification in connection with the federal modernization crusade; sponsoring—jointly with Rocky Mountain Electrical Assn.—the Nela Park Commercial Lighting School Oct. 23-26; preparing for the Christmas Lighting contest in which all Denver joins; and collaborating on the tri-state "Give Something Electrical For Christmas" movement. George Bakewell, manager, announces that Denver's Christmas Lighting will be accompanied by more ballyhoo than ever before, with bands, trick electrical control of downtown lighting, speeches and novel electric designs on business thoroughfares.

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Edison Advertises Home Modernization

Bringing the electrical equipment phase of the modernization program of the Federal Housing Administration into the kitchen and down on the farm, the Southern California Edison Co., during October and early November, is advertising in 160 daily and weekly newspapers with two types of copy. Billboards, car cards and window displays supplement the newspaper copy.

One series of ads is featuring agricultural or farm modernization while the other deals with all-electric kitchens and appliance modernization. To back up the program, which features cooperating dealers and contractors, the consumer contact personnel of the company has been fully informed as to provisions of the act.

Replica of the attractive color harmony kitchen used in its remarkable moving picture in color, was the "Wife Saving Electric Kitchen," at one end of the Edison cooperative display at Pomona fair

Electrics Bright Spot of L. A. County Fair

Under a modernistic canopy blazing 100 ft. candles of intensity down upon them, electric ranges supplied by cooperating distributors were literally in the spotlight at the Los Angeles County Fair, Pomona, Calif., Sept. 15 to 22. Oddly enough, coincidence placed the natural gas exhibit right next to that of the Southern California Edison Co. and of the Frigidaire Co., (back to back with it). Visitors to the fair had excellent opportunity, therefore, to compare the two modes of cooking equipment. But while the gas exhibit was in comparative gloom, the Edison display fairly blazed with light.

A model electric kitchen, of the same color harmonies used in the technicolor moving picture, "Dinner for Eight," set off the end of the display. Steel sectional kitchen cupboards, a dishwasher sink with monel metal sink and sinkboard, provided the demonstrators with a graphic picture of how a kitchen may be modernized under the Housing Act loans, building-in electrical equipment and kitchen cabinets. The kitchen, called the "Wife-Saving *Electric* Kitchen," had a further support in the notation to the public to "Look Ahead—Electrify."

Another electric kitchen, placed on display by the George Belsey Co., nearby; as well as a number of electrical appliance displays entered by dealers and distributors, showed off electrical wares to the visiting crowds at the fair.

Pump Exhibit in Machinery Tent

Completely surrounded by numerous gas, gasoline, and natural gas engines driving pumps, the electric pumps literally poured their lot in together in the machinery tent of the fair. Backed by a display of switching equipment of Square D. Inc., Southern California Edison Co., Ltd., provided energy and a central sump into which all of the cooperating pump manufacturers' pumps poured a steady flow of water. In the center was an immersion type pump which shot its stream straight into the air. The whole effect was of a massive fountain, upon which floodlights and a colored spotlight played.

Clyde Huston, assistant commercial manager, Edison Co., former Pomona district manager for the company, was chairman of the fair board this year. In size and displays this fair, its supporters claim, now rivals the California State Fair, at Sacramento.

Center

Under a canopy of light, with strong selling ideas lettered on each side, the electric ranges of all participating distributors were grouped. Each day the range in the kitchen was changed to give all a better display opportunity. Distributor salesmen were on hand to sell

Lower

Although completely surrounded by engine competitors, the electric pumping exhibit of cooperating manufacturers and the Edison company held the center of things at the Pomona fair. All the pumps poured into a common fountain, quietly, while noisy competitors puffed away around them

Gridiron Guess Game Draws Dealer Trade

Particularly successful with radio games as a means of sales promotion for radio sets, the Bureau of Radio & Electrical Appliances of San Diego County began in October a new series entitled "Gridiron Guesses." Two 15-min. broadcasts a week on Mondays and Thursdays over KGB are conducted by Garry Breckner, Columbia network announcer of coast football games.

Listeners are invited to participate in the contest which involves guessing the scores of five games each week. The games around which the contest revolves have been picked in advance and are listed in the material which is handled by the radio dealers. Score blanks must be obtained from radio dealers' stores. Cards are filled out and mailed Friday night of each week for Saturday's games. Prizes consist of football tickets for succeeding weeks and at the end of the contest a grand prize of four choice U.S.C.-Notre Dame tickets are offered.

"We are most fortunate in having this opportunity to bring thousands of football fans into our stores during the next nine or ten weeks. It should prove mighty helpful," said Secretary-manager J. Clark Chamberlain.

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Denver Shows Way for Garden Lighting

Yard and Garden Lighting contest conducted by the Rocky Mountain News and Rocky Mountain Electrical Assn. Sept. 9, when S. P. Officer of the Mountain States Telephone and Telegraphed Co. was awarded the first prize of $100 cash.

Nearly one hundred entrants participated in the event, which is to be an annual affair. Lavishness of display was not a factor in deciding the winner. Encouragement was given the average householder to equip his premises with modest illumination, and every facility was placed at his disposal, by way of free professional guidance, to achieve this end. In contests of this kind, this was pointed out as a valuable feature by its sponsors..

Judges were George A. Lewis, Rocky Mountain Electrical Assn., Dana W. Rowten, Public Service Co. of Colorado, and Gene Cervi of the Rocky Mountain News. They agreed on Mr. Officer's entry as best, guided by these points: (1) General effect was one of beauty. (2) Lights were expertly placed, hiding their source. (3) When lighted, the yard offered unusual utility, providing an excellent place for outdoor entertaining and recreation. (4) No glare. (5) Protection to the home. (6) Good taste was displayed. Nothing garish.

Second and third prizes were an electric fountain and an illuminated garden seat, respectively. Twelve displays, in addition to major prize winners, were given honorable mention.

An Autumn Foliage Illumination contest, under joint auspices of the newspaper and Rocky Mountain Electrical Assn. is under way. The industry is finding benefits in stimulated business from this type of activity.

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Christmas Drive Plans Under Way

Christmas merchandising cooperative campaign plans of the Electric Appliance Society of Northern California are in the formative stage at the present time, according to B. W. Reynolds, P. G. and E. promotion manager, and officers of the Society. The program this year will take on many of the familiar technique features which have been employed to such good effect throughout the year with the various single appliance campaigns.

Key newspaper advertisements in as many papers as possible, posters for display purposes in both store and window, a feature theme selected by the committee, radio broadcasts if money for this is available, clipping sheets for newspapers, mats and engravings, dealer broadsides, bill stickers and other features will be developed to promote the Christmas gift idea. The entire range of electrical appliances will be featured in the Christmas campaign. Dealers and distributors who have tied in with previous campaigns almost all feel that participation brings results in proportion to the effort expended.

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Mail Campaign to Aid Lighting

Tying into the fall lighting campaign on a cooperative basis with the dealers and contractors over its system, the Bureau of Power & Light, Los Angeles, has started a direct mail sales campaign selling improved lighting to retail stores. Eleven folders of highly specialized, personalized nature are being sent to every type of retail business.

The Bureau's illumination engineering staff, under Ted Shepard, will follow up inquiries, make check-ups of lighting efficiency and recommend improvements in lighting installation. Dealers who supplement this service by active efforts of their own to reach this same public will be aided by this preparatory work of the Bureau.

Switch Co-op. Ads to Modernization Theme

Originally planning a program to feature the low cost of operation of an electric range, the Bureau of Power and Light, Los Angeles, has just announced that its November advertising will concentrate upon the modernization loans available to home owners with which they may purchase from cooperating dealers electric ranges, refrigerators, dishwashers, water heaters, or other fixed appliances.

In order further to capitalize upon this opportunity, the Bureau has set up a department to aid home owners in the details of making the loans and purchase of such appliances. Gerson Ray, formerly range salesman for the Bureau, has been placed in charge of this service to customers.

Dealers who have prospects for the purchase of such appliances, or for the complete electric kitchen, send their prospects to the Bureau, reporting first the cost of the equipment required by the customer. From that point on the Bureau makes the arrangements for both dealer and customer. When the loan is completed the bank pays the dealer cash and the sale is made.

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San Jose League Plans Exposition

San Jose plans to do it again. Meaning thereby, a successful electrical exposition is all signed up and ready to be delivered to the public of the Santa Clara County region Nov. 14 to 17. The finance committee, headed by George Thompson and Bill Bowler, on the first rounds of the various appliance dealers in San Jose and Santa Clara signed up all booths available in the exposition and the show was started.

Auditorium Rink on The Alameda will again be used to stage the electrical exposition. William Harvey, president of the Electrical League of Santa Clara County, appointed a group of committees which immediately went into action for the various details of the show. Orville Johnson, Graybar Electric Co., was placed in charge of the arrangement for the speaking system to be installed in the auditorium. Another committee has charge of the cooking shows to be held there. There will be twenty booths, all of electrical appliances or wares and practically all of the firms in that region will be represented. Special features in the way of attractions to bring the public are being planned also. The entire industry of the region plans to make the most of this opportunity to build Christmas trade.

Records Broken in Society's Washer and Ironer Campaign

September Washing and Ironing Machine Campaign of Electric Appliance Society Adds More Laurels for Cooperative Group

NOW that exact sales totals for the September Washing and Ironing Machine Campaign of the Electric Appliance Society of Northern California have all been compiled, an initial check-up indicates that all records for electrical laundry equipment sales in the West have been eclipsed, thus chalking up another merchandising victory for this year-old, go-getting cooperative group.

With the theme, "It's thrifty to own a complete home laundry," the campaign was a straight selling event, with no special offers. Funds were raised through a cooperative plan in which the Pacific Gas and Electric Co. matched dollar for dollar the donations of the manufacturers and distributors of the ABC, Apex, Conlon, Cooper-Tray, Easy, General Electric, Faultless, Ironrite, Norge, Thor, Universal, Victory, Voss and Westinghouse washers and ironers.

The campaign was held during the entire month of September and covered the territory served by the Pacific Gas and Electric Co. The Society's program was featured by a 48-inch newspaper advertisement to provide a nucleus for special pages or sections which the newspapers promoted among dealers selling the electric washing and ironing machines in the campaign plan. The schedule included forty of the major newspapers in Northern California. A clip sheet with suitable publicity material and illustrations, which were made available in mat form, provided the press with adequate editorial material to make up special sections or pages developed by them.

As a result of this work some 9,620 inches of newspaper advertising on washers and ironers was secured in the forty papers to tie-in with the Society key ad. In addition, 3081 inches of "free publicity" was secured, making a total of 12,701 inches of newspaper space.

The Society's advertisement listed the trade-names of the manufacturers and distributors cooperating in the campaign and newspapers were asked to solicit advertising for the special pages only from dealers selling these makes of washers and ironers. This was considered a fair means of insuring the benefit from the campaign to those whose contributions made it possible.

Society's large advertisement, around which dealers and distributors carried individual tie-in ads. Note the names of each make of cooperating machine

Six color poster which was used in window and store displays

Campaign posters, in six colors, 20 by 30-inch in size, were furnished without charge to dealers selling makes of washers and ironers included in the campaign plan.

In addition to its financial contribution to the campaign the Pacific Gas and Electric Co. provided for washing and ironing machine displays in some 65 offices, visited by approximately 250,000 people monthly. It also provided for window displays featuring electric washers and ironers in 65 offices and contributed to the campaign its billsticker, sent to some 550,000 electric consumers, and an essay contest in P. G and E. Progres.

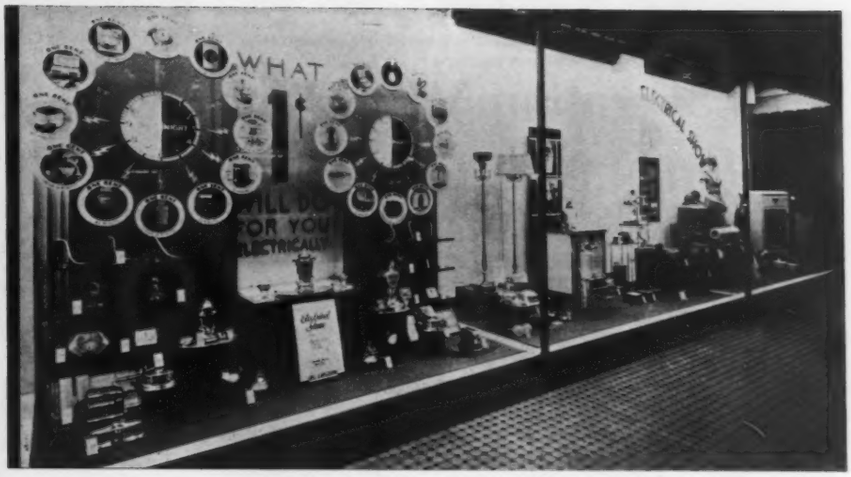
One of the most striking and result-bearing features was the arrangement by the P. G. and E. Co. for the employment of demonstrators in more than 60 offices. These demonstrators were, in the main, local women who were employed for a specific number of hours and a specific number of days during September. The number of days was in proportion to the size of the town and ranged from 18 down to 4 days while the number of hours per day was either 4 or 5.

Manufacturers and distributors of the Apex, Conlon, Easy, General Electric, Thor and Ironrite ironers provided towels which were given away in the P. G. and E. Co. to any visitors who would iron them in the company office according to the demonstrators instructions. The fact that towels were given away was not advertised, this feature being used merely to illustrate the simplicity with which the ironing machines could be operated.

Sales and Advertising Results—1934 Campaigns

Electric Appliance Society of Northern California

Campaign (Month)	Sales Results			Tie-in Advertising Results			
	Total camp sales	Sales same mo. 1933	Percent increase	No. of newspapers	Total tie-in ads, in inches	Total publicity inches	Total inches advt. and publ.
Vacuum cleaners (March)	2,092	962	117	9	2,965	363	3,328
Refrigerators (May)	3,350	2,233	*50	63	23,971	6,326	30,297
Washers and ironers (Sept.)	2,915	1,839					
	778	460					
Total units	3,693	2,229	61	40	9,620	3,081	12,701



What 1c will do for you electrically—dramatized by pictures around a center-clock dial, made a most unusual window display for the Emporium in San Francisco. Next to it was a washer and ironer display. At left was the Light-Sight Demonstrator which attracted attention on the floor of the Emporium annual Electrical Show

In addition to the demonstrators, the Society's two educational department field workers covered the territory, conducting demonstrations in the key towns, giving instructions to local demonstrators, holding schools, calling on dealers, making talks before groups of salesmen and otherwise assisting towards the success of the campaign.

Realizing that a proper "follow-through" is as important in merchandising campaigns as in a game of golf, the Society has kept its field workers busy during the entire month of October visiting dealers throughout the territory instructing demonstrators, and in general continuing the same type work they did during the September campaign period. Enthusiastic reports coming in from all sections indicate that this follow-up program is yielding a rich harvest. Dealers are taking a much keener interest in washing and ironing machines than they ever did before. They are putting these appliances "out in front" and in scores of instances are hiring local demonstrators, doing special newspaper advertising and in many other ways actively promoting home laundry appliances.

Dealer comments received from all divisions of the Pacific Gas and Electric Company seemed to indicate that the washing and ironing machine campaign was the most outstanding cooperative business-building drive yet conducted by the Electric Appliance Society and that it has served to establish a responsive feeling among retailers which augurs far-reaching success for all future campaigns conducted by the Society.

Emporium Show Offers Display Idea

"LEARN what 1c Will Do For You Electrically" was the eye-catching appeal used by the Emporium, San Francisco department store, at its second annual electrical show, Sept. 17-24. This theme dominated the table appliance section displays and was utilized uniquely as shown in the accompanying photograph in a startling window display.

The major appliance section tied in with the Electric Appliance Society of Northern California washer and ironer campaign, featuring a display on its floor entitled "The Wife-Saving Station." Used effectively in connection with it was the slogan used by Pacific Gas and Electric Co., namely that "any woman who does the work of a small motor is working for less than 3c per hour."

Twenty-five factory representatives also cooperated in the exposition. Each of the factories sent a trained demonstrator for the week. In addition were novel presentations by the Westinghouse company, one "The Westinghouse Circus" direct from the Century of Progress Exposition, and others showing "Controlled Lighting," "The Electrical Eye," "Black Light," etc.

In speaking of the event, Messrs. Ely Popovitch, manager of the major electric appliance department, and W. Tracksell, manager of the electric table appliance department, stated "These events drew many curious people, but our specials of new appliance brought the buyers. It was the intention of this event to sell as well as to show, and in both the results were very gratifying."

The theme of what 1c would do was developed in cooperation with the sales department of the P. G. and E. Twenty-four items were selected to illustrate the length of time each appliance would operate for 1c. In the window trim each of these twenty-four was photographed and the operating time shown. It was supplemented on the sales floor by large cut-out pennies and clocks and one-half sheet posters listing the appliances and their operating time. The Wife-Saving Station was decorated with large signs representing life savers and cut-out figures of housewives being saved by life guards.

Some of the new appliances which were featured included: matched service table appliances by Manning-Bowman; puree-maker and pea sheller attachment for the Sunbeam Mixmaster; Retract-O-Cord set for ironing; Thermex coffee makers; Toastmaster Hostess trays; Hamilton Beach food mixers; Durabilt hotcake griddles, etc.

Participating in the show were the following major appliance items: Easy washers, ironers; Thor washers, ironers; Eureka vacuum cleaners; Norge refrigerators; General Electric refrigerators; Westinghouse refrigerators; General Electric dishwashers, ranges, air conditioners and ventilating fans.

Pacific Gas and Electric Co. had a display on the floor, the General Electric "Let's See" light demonstration box, with a lighting specialist present to explain the science of seeing.

Attendance at the show was four times the usual store traffic. Sales were better than usual for the week and also for the following two or three weeks.

The 1c display was so constructed that it will be used in turn by all of the Dohrmann stores in northern California.

Cooperation Wins Idaho Co. Hughes Cookery Award

WITH the domestic market constituting one of the major fields for future development, the factors contributing to the winning of the George A. Hughes Award of the Edison Electric Institute by the Idaho Power Co. contain beneficial suggestions for incorporation in the 1935 load-building program of any utility company. A carefully planned sales program involving a maximum of dealer cooperation and backed up with special sales campaigns, demonstrations and cooking schools, salesmen's schools, and advertising constitutes the essential element of the program which won the award for the company.

Basis for the award was the highest percentage of electric ranges connected during the period between Jan. 1, 1933 and March 31, 1934 in proportion to the total number of wired homes not using electric ranges at the beginning of the contest. This included all sales in the territory served whether or not they constituted a replacement of obsolete inefficient types of ranges. During the fifteen months of the campaign a total of 1,577 ranges was sold in the territory of the company, of which 22 per cent represented sales by cooperating dealers. A total of 804 fell in the replacement classification. With 14,888 electric ranges in use among the 32,951 customers on the company's system at the beginning of the campaign, the ratio of sales to the number of customers not using electric cooking was 8.73 per cent. At the conclusion of the fifteen-month award period the degree of range saturation on the lines of the company was 47.2 per cent.

A detailed market analysis and business development plan form the basis for all load-building activities of the company. This is an annual undertaking and electric ranges are given full consideration in this market study and sales program. Full executive support is assured the sales organization. This executive support reaches beyond the head offices of the company out into the various divisions as well.

Annual sales meetings are held in each of the company's five operating divisions at the beginning of each year. All employees attend and the sales and load-building program is explained in detail. A major factor in the sales operation is the encouragement of all-employee interest and participation in sales activities with particular reference to the sale of electric cookery. A self-interest argument has been used in securing this employee cooperation.

During the period of the award twelve major sales campaigns were conducted, each of which carried electric ranges as the principal or at least a major feature. Outstanding among these campaigns was the reconditioning and replacement drive held during February and March, 1934. This campaign resulted in a quota accomplishment of 254 per cent. Another campaign was built around the idea of an electric range "recovery code." A third has had as its stimulant the announcement of the appointment of K. M. Robinson as general manager.

During the fifteen-month period of the award, public demonstrations or cooking schools were carried on in the majority of the towns served by the company. A total of 29 of these cooking schools was held with approximately 12,500 people in attendance. Some of these were company cooking schools, others were conducted in cooperation with newspapers and a third group was sponsored by food merchants with whom the company cooperated.

In connection with these demonstrations and cooking schools 80,746 lines of newspaper advertising and publicity appeared.

Salesmen's schools were conducted under the direction of a home economist in every one of the company's divisions. These schools were not limited to the company's salesmen but were open to dealers and their salesmen as well.

Electric Cookery Councils were organized in Boise, Twin Falls and Pocatello. These were formed in conjunction with local refrigeration bureaus already in existence. Refrigeration and cookery shows were held in each of these three cities for three-day periods. Estimated attendance at these three schools was 3,500. Activities of these local cookery councils resulted in the award of the third prize in the "New Victory Electric Range Contest," sponsored by the National Electrical Cookery Council to L. W. Brainard, sales manager of the company.

Home service work plays an important part in the company's electric range sales activities. A home service expert devotes her entire time to demonstration work. This service is available to customers who purchase ranges from dealers as well as those who purchase from the company.

A portable demonstration kitchen was purchased by the company early in 1933 and has been in constant use since its delivery.

Advertising of the company has featured the all-electric kitchen rather than one single appliance. Net figures are not available on the amount of advertising space devoted to electric ranges alone.

As a part of the "Every Customer Contact Activity" adopted by the company 15,394 cooking customers were called upon. A total of 1,590 electric ranges in need of repair was discovered as the result of this activity and arrangements were made with customers for repairing 897 of these.

A well organized specialty sales crew compensated on a basis principally of salary with a small pooled commission has been the moving force behind all of the sales activities. All sales courses offered by manufacturers and other organizations have been made available to members of the sales force as well as to all other employees of the company.

Only half of the attractive Refrigeration and Cookery Council show staged by the Idaho Power Co. and cooperating dealers at Boise, this year.

Delta, Colorado, 3,000 population, borrowed ideas and equipment from Salt Lake City's big modernization exposition, staged an exposition itself. Below, the armory, floodlighted, and with new lighting standards set up alongside to show citizens what modern lighting means

Model displays, in modern style, the first ever seen in town, were set up in the hall and dealers from the city invited to use them to display their wares under attractive surroundings

Small Town Profits from Electric Show

The Western Colorado Power Co. worked with thirty-odd merchants of Delta, Colo., population, 2,945, in promoting the Delta Modern Merchandise Exhibit, attendance at which during seventeen days was 17,701, counted by the electric eye.

Delta is located on the Western slope of Colorado, and one of its "distinctions" is the fact it has one of the most antiquated street-lighting systems in the country. An educational selling feature in this connection was a series of ornamental street lighting standards, five, established on two corner sides of the state Armory, where the exposition was held. In addition, a flood light was directed upon the building. This equipment was a visual demonstration of modern outdoor lighting throughout the merchandise show.

The utility undertook the electrical features of the show, including exhibits used at a recent Salt Lake City promotion event. Prominent local merchants, who had visited the Salt Lake City exhibition, saw the possibilities in a local Delta show, despite the small size of their city, especially with utility cooperation.

Space in the Armory, both auditorium and balcony, was blocked out, and local merchants, deciding the amount of space they wished, drew lots. The cost figured to 40c per square foot.

One of the lumber companies undertook to build, as its promotion, a three room structure, containing a model dining room, bedroom, and bath room. These afforded an excellent opportunity to demonstrate modern lighting. A model living room was air-conditioned, and all visitors had to pass through it to reach the model kitchen, equipped with latest electrical features.

During four days of the exposition, in the auditorium a large model kitchen display was made the basis of cooking classes by the utility. This feature drew spectacular attendance.

An opportunity to demonstrate modern window lighting was created with a stage, in the form of a modern store display window, at one end of the auditorium. This space was located among the exhibitors.

Merchants in all lines enthusiastically joined the project. The variety of exhibitors included a bakery, a flour mill, creamery, department store, furniture and hardware stores, grocers, two oil companies, two lumber companies, a sugar company, one drug store, a seed and feed dealer.

The most astonishing fact concerning the exhibit was, perhaps, its length. It was open daily from 2:00 p.m. to 10:00 p.m., Sundays excepted, for three weeks. The total attendance was nearly six times the population of Delta. When people returned a second and third time, as many did, the promoters considered it fine attendance.

The electric eye constituted a great attraction. Home modernization lectures had appeal, an effective tie-up being made with the better housing program of the Federal Government. Besides the cooking school, there were educational motion picture films.

The attendance was far greater than would have been attained for a straight electrical show. The town and community were made "electrical conscious" as they had never been before, and high good will and enthusiasm aroused among the business men of the town.

●

• To Name New Officers for the forthcoming year for the Electric Cookery Council of Southern California, a committee consisting of the following was selected: Bill Schlagel, Manual Arts Sales Co.; N. H. Van Warmer, Southwest Appliance Co.; Charles Hess, Southern California Edison Co., Ltd.; Norma (Ann Martin) Newton, Bureau of Power and Light.

One of the dramatic lighting educational displays used first in Salt Lake City, then in other cities of its system, by the Utah Power & Light Co.

San Diego Exposition Eclipses All Records

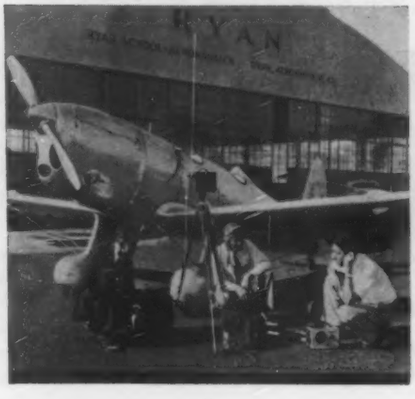
"BY comparing our second annual electrical exposition with that of a year ago, which we believed to be outstanding, the latter was a huge success." So reports J. Clark Chamberlain, secretary-manager, of the Bureau of Radio and Electrical Appliances of San Diego County. "Attendance reached 72,000 as against 51,000 last year, remarkable when considering that perhaps 20,000 Navy people had not yet returned to the city. Attendance represented an excellent cross-section of San Diego County people from all parts of the county.

"Wide diversification of exhibits, with every radio, refrigerator and practically every other appliance sold in the territory represented, even conventional appliances being displayed by attention-getting features and with a number of new things, such as home workshop appliances, model kitchens, lighting fixtures, therapeutical equipment, lighted house numbers and signs, a freezer case stocked with meats, motor and motor winding exhibits, ideal wiring display, etc. added greatly to the hold on the crowds of visitors.

"Both General Electric and Westinghouse Co. had large displays devoted exclusively to lighting as well as the one by the power company. Better Light-Better Sight was thus exhibited and tests with sight meters proved of great interest to the visitors. Even the optometrists and opticians had a display tying in with the Better Light-Better Sight program. Over 26,800 pamphlets on lighting alone were given away only to adults asking for them.

"Appropriately and spectacularly the opening was staged by the National Guard searchlight squad with a battery of high-powered mobile searchlights. Ryan Aeronautical School supplied its new aluminum airplane which was spotted by the searchlights as it flew about San Diego. A short wave radio set in the plane communicated with the ground and these conversations were put on loud speaker systems to the crowds awaiting the actual opening of the doors as well as rebroadcast over Station KFSD. This feature contributed greatly to the attendance because listeners throughout the county could listen to the broadcasts.

Claude Ryan, who built Lindbergh's plane; John Fornasero, his chief pilot, and Bob Brooke, chief technician, KFSD, and the Ryan plane that opened the show



"Taken on the second night of the show, facing the stage. It gives you an idea of what a mad-house we had." But they were all crazy with the idea of what electricity should be doing for them in this modern age

Optical exhibit which tied-in with the Better Sight-Better Light theme of the lighting exhibits

"Another interesting exhibit was one on the progress of radio. The San Diego State College had an exhibit of electrical testing equipment. Radio Amateurs Assn. had a very popular exhibit in which this association sent bona fide messages by short waves all over the world. These messages were sent free of charge for visitors to the fair. Nearly 2,000 blanks were filled out and sent."

Despite tremendous crowds which made individual selling almost impossible, many orders were actually taken during the showing. No attempt had been made as yet to check the actual amount of business done but it was considered very satisfactory by all exhibitors. Hard-working Secretary-Manager J. Clark Chamberlain and his committees, President E. W. Meise and the board of directors, Forrest Raymond, in charge of advertising, with Ed and Norman Davidson, made the show an unforgettable one from an achievement standpoint and it is generally felt around San Diego County that the effect on merchandise sales during the Christmas season will be materially felt throughout the county.

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Dealers Join Empty Socket Campaign

DEALERS this year are themselves entering the customary winter campaigns to fill empty sockets and to sell lighting in San Diego County, thanks to the efforts of the Bureau of Radio & Electrical Appliances of San Diego County. Heretofore San Diego Consolidated Gas & Electric Co. has conducted a campaign of its own each year among its employees and using its employees to contact the public and sell them lamps to fill the empty sockets throughout the territory served by it.

This year a lighting campaign is being sponsored by the Bureau in cooperation with the General Electric and Westinghouse Lamp Companies as distributors of lamps and all dealers in San Diego County handling lamps. A barrage of advertising over the name of the Bureau is being run in the daily papers. This is bolstered by providing each dealer with a copy of the five ads, together with general advice on lighting which can be used by them and their salesmen. Booklets are also provided all dealers by the distributors to give out to their customers who respond to the newspaper advertising.

Even when the campaign was but a week old considerable increased inter-

"Help me
WITH MY HOMEWORK,
Mother"
HE isn't dull or lazy. But he is handicapped by poor lighting in his home. It's almost as if he wore smoked glasses, to study!
Don't let your child strain his eyes! If he holds his book noticeably closer than 14 inches, he needs better light, and possibly glasses. Nearly one-fourth of all grade children suffer from damaged eyesight. Science now reveals that much of this may be avoided.
MAZDA
BUY 6 AT A TIME SAVE 10%
COUPON
FREE PRESENT this COUPON to any Radio or Electrical Dealer for a FREE copy of booklet on CARE OF YOUR EYES. You will find this booklet a valuable aid for BETTER SEEING.
Bureau of
RADIO AND ELECTRICAL APPLIANCES
of San Diego County

Not many words, but each one packed with appeal and force, telling a story no mother can ignore. This was one of the strong ads used in the cooperative lighting campaign conducted by the Bureau in San Diego

est in better lighting was noted. Furniture stores and dealers handling the reflector types of floor and table lamps were reporting that customers gave attention to these kind of lamps for the first time.

On its part, the power company has a crew of salesmen selling reflector lamps and demonstrating them.

Working thus together, the general level of illumination should be raised in the San Diego area, all empty sockets filled, and considerable business spread out among all the dealers participating.

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"Team Work Helps Make Touchdowns"

MAINTAINING that there is a market of over 100,000 electric ranges in the Portland area, the Portland General Electric Co., together with dealers in that territory launched an unusual, and what appears to be a result-getting, electric range campaign. One hundred eighty dealers and their salesmen attended the opening dinner, the "kick-off" of the campaign. In the dealers' salesmen training school, which Pepco staged for three successive Tuesday evenings, there were between 70 and 80 in attendance each night. Orr Crites, merchandise manager conducted these classes.

Emphasis in the entire campaign is placed on the superior kind of cooking, preserving the delicate and volatile vitamins and mineral elements of the food, which is possible only with electric cookery.

An unique prize contest, in which an electric range is being given away each week as the incentive to enter the contest, is being run. A "jingle", or short poem is written about electric cookery, and the last two lines left unfilled. Contestants must obtain entry blanks from cooperating dealers. The nature of the "jingle" is such that unless the contestant makes a thorough study of the virtues of electric cookery, the answer will not satisfy the judges. Through dealers Pepco is receiving from 1,200 to 1,500 "jingles" weekly, which means that a corresponding number of people are entering dealers' stores and learning about electric cookery.

In the advertising, each make of range is featured in turn, and besides details of the contest, a list of the

Monarch ELECTRIC RANGE FREE
to whoever submits the best completed Jingle
READ THIS...
Rules of Contest
Biscuits are burned and thrown away!
That kind of baking cannot pay.
PEPCO...Portland General Electric Co.
ELECTRIC COOKERY

One of the series of "jingle" ads, each one features a different make of range given away as a prize

dealers at which the particular make is displayed is given. Window display material is also being supplied dealers by Pepco.

As an added stimulus a contest is being conducted among salesmen of all dealers. Pepco is offering $50 in cash prizes to salesmen who have attended the training school and who sell the most electric ranges. Prizes of $25, $15 and $10 are offered the salesmen making the highest number of sales. Berkeley Snow is handling the judging of the "jingles" entries.

When the contest closes on Nov. 12, dealers and Pepco expect that the date will mark the termination of one of the most effective and sales producing campaigns ever staged there cooperatively.

Nela Troupe Trains Lighting Sales Crews

CARRYING a most elaborate and complete equipment, its own stage, its own lighting units for the auditorium, and a crew of specialists in education of sales personnel in lighting practice and sales work, the Incandescent Lamp Dept., General Electric Co., of Nela Park, Cleveland, staged simultaneous lighting schools on both domestic and commercial and industrial lighting in six cities in the eleven western states. The tour has just been completed, leaving behind a re-inspired group of lighting salespeople, not only among central station employees but among many of the lighting fixture dealers and manufactrers.

Butte, Mont., had the first of these schools, then came Portland, San Francisco, Los Angeles, Phoenix, and Denver. In each case the domestic lighting course was tutored by Miss Mary Webber, home lighting specialist, assisted in many of the class lecture subjects by S. M. Litscher, sales promotion department, and by a local assistant. The division engineer of the lamp company in each region also assisted. Usually the school was opened and closed by the chief sales executive of the central station at which the school was held, as well as the executive for the lamp company for the division.

Commercial and industrial lighting course was conducted coincidentally by Alsten Rogers, commercial engineer, F. B. Lee, commercial engineer, S. M. Litscher, sales promotion department, and the division engineer.

While the courses were particularly designed to train the new people added to the lighting staffs of public utilities and dealers during the past year, the response from many of the old timers who attended was that the course was just as valuable to them as to beginners. One thing pointed out repeatedly was that these courses were designed to be far more practical in everyday selling problems, gave so much real assistance in the door-to-door technique, were handled with such an appreciation of the salesman's problem, that they were considered much more valuable by the salesman than the more theoretical and scientific courses of the past. Miss Webber, too, gave salesmen and saleswomen a better approach to the point of view of the woman of the house, who has very definite ideas as to how her house should look.

Space at this writing being limited, it is intended that some of the more salient selling points and ideas developed at these schools will be treated in these columns from time to time.

Training Young Farmers in Rural Electrification

Smith-Hughes Vocational Agricultural Classes Familiarize High School Students in Farming Communities With Electrical Applications on the Farm. Electrical Knowledge Means Wider Usage and Better Customers in Rural Areas.

By GEORGE P. COUPER
Department of Education
State of California

Practically all the larger high schools in farming centers give electrical instruction. Over 20,000 young farmers in the 11 Western states are receiving training in farm electrification along with their regular education. Is the electrical industry overlooking an opportunity to build good customers for the future by failing to cooperate in every possible way with educational organizations which have taken the responsibility of building an appreciation of rural electrification. — The Editor.

HOW is the farmer learning about electricity and its uses on the farm? For the older generation there is little organized educational work being done. For young farmers much is being accomplished through the vocational courses in the high schools of the country. In the eleven Western states, approximately 20,000 boys living on farms and attending high school are given systematic instruction on electrical power and equipment through the agricultural mechanics courses taught in connection with their Smith-Hughes vocational agricultural work. The training that these boys receive in rural electrification in this way undoubtedly is partially responsible for the progress that has been made in electrifying so many farms in the West.

From past experience, the user of intricate equipment generally feels that he should have a reasonable knowledge of its operation. This is particularly true of the farmer who cannot rely upon skilled assistance for repair of machinery as may be the case of the urban user. Therefore it becomes evident that the expansion of the use of electrical equipment, which is relatively little understood by the layman, depends upon a corresponding expansion in electrical knowledge by the user.

If a farmer has sufficient knowledge of internal combustion engines to make ordinary repairs and adjustments but has no knowledge of the operation of an electric motor, it is a fairly safe bet that he will favor the engine even though the motor may possess many economic advantages for him. It is to the end of familiarizing the young farmer with practical electricity that the Smith-Hughes vocational work is directed; it is not designed to make him an electrical technician.

The time allotted to the course is given to train more efficient farmers. Where use of electricity becomes an integral part of the mechanics of farming, a knowledge of electrical equipment has the same relation as a knowledge of feeds, or fertilizers, or sprays. The content of courses varies greatly. Most high school agriculture students take at least two years of agricultural mechanics. But this must cover the entire field of farm carpentry, concrete work, sheet metal work, forging, use of grinders, rope and leather work and a multitude of other jobs, so that the study of electrical equipment and installation must occupy only a small amount of time.

Probably the course outlined by Hugh A. Dow, agricultural mechanics instructor at Lodi (Calif.) high school, may be considered typical of the larger high school. Lodi has more than 100 boys taking vocational agricultural courses, is in an intensively-cultivated area where use of electrical equipment is probably as extensive as any in the West, and has an excellently-equipped and staffed high school. Mr. Dow outlines his course as follows:

Elementary Current Generation: Magnetism, lines of force, A. C. and D. C. Current. Wiring and Splicing: Series and Parallel, Lights and Switches, Protective Devices. Small Appliances: Household appliances, light controls, two-way switches. Motors: Sizes and speeds, oiling and cleaning, bearings, brushes, overloads. Common troubles: Open and short circuits, burned-out elements, overheating, common motor troubles. Cost: Equipment and installation, current and maintenance.

While this may seem very sketchy it must be remembered that the principle of vocational education is "learning by doing." While the boy may be working over a motor for one particular phase of trouble, he will be learning a whole lot about the windings, brushes, bearings and other things.

You may be sure, too, that the high school boy who has studied some of these factors isn't going to let his knowledge rest. About the first time the cow kicks over the kerosene lantern, threatening to set fire to the barn, Jack is going to remark: "Dad, we ought to wire the barn for lights."

"We can't afford it," replies father, whose last cream check will barely pay for the cow's feed.

But that doesn't satisfy Jack. Pretty soon he has a clean board and a pencil, and is pacing off the distance from the nearest electrical connection to the barn. He is up on a ladder looking at the rafters and figuring out the shortest route to points where lights are needed. He has learned about requirements and costs. The first chance he has to look in an electrical supply catalog, he has a list of prices on wire, fuse boxes, light sockets and other things. Next he has the whole thing worked out.

"Alright," says Dad. "This looks cheap, but the cost of having it put in would double that."

"No it won't says Jack, proud to show off a practical angle of his schooling. "I'll do it myself."

And he does. Hundreds of barns, poultry houses, milk houses, vegetable cellars, farm packing houses, fruit dry-

ers and other farm structures have been wired by these boys in recent years.

Electrical contractors may feel that the school system is taking away their bread and butter. Far from it. Until the farmer is receiving a greater portion of the consumers' dollar than he is at present, he will continue to get along without the modern devices except where they can be installed cheaply. In other words, if he cannot do many of the things himself, or with the help of his son who is learning a few simple rules in his high school work, the jobs won't be done. When and if prosperity comes back to the farm, the contractor will reap his reward many times over. The farmer will expand his electrical equipment far beyond the training of himself and his son. Once the start is made in the manner described, it is reasonably easy to go on to more equipment, provided the funds are available.

Give farm boys just a taste of the knowledge and advantages of electrical use, and they will go a long way. No boy has ever turned the cream separator, grindstone, washing machine or sheep-shearer without wishing that power could be applied to that particular job. Give them the knowledge to hook up the power and if there is money available, they will surely put electricity to use.

In the last few years, some very useful, low-cost devices have been developed in the agricultural mechanics shops of our high schools. Some of them are simply shop-made imitations of standard devices. Quite a number are clever inventions of students or instructors. Among them are the following: Drinking-water heaters for poultry, incubators and brooders, electric fly-traps, time switches for turning on night lights in poultry houses or dairy barns, electric heaters for seed germination in hotbeds, various types of agitators for fluids, sterilizers for dairy or farm veterinary equipment and scores of others.

Hundreds of energy consuming devices have been built and put on the lines by these youngsters, who, young as they are, already are looking for better ways to farm profitably. The young generation of farmers is becoming more and more conscious of the use of electrical power and appliances. Their imaginations are stirred by the newspaper, magazine, radio and other mediums. Their desires are whetted by window displays, demonstrations and exhibits at agricultural fairs. The knowledge of the fundamentals of electrical power and machinery operations that is given them in their schooling will prove to be a potent factor in hastening the universal adoption of electricity on the farms.

Sell Water Systems in Oregon Drive

In an effort to bolster sales of automatic electric pumping systems in rural districts around Portland, Ore., in line with the suggestions of the National Water Systems Council, the Portland General Electric Co., and the Northwestern Electric Co., of that city, with ten distributors of electric water systems, formed a local Council and put on an activity from Aug. 15 to Oct. 15. The campaign featured newspaper and direct mail advertising, a window display contest for dealers and a slogan contest for the general public.

The dealers' window display contest was designed to gain the interest and the enthusiasm of this group in the cooperative campaign. The slogan contest was intended to produce prospects and, since all slogans had to be turned in through dealers, this feature proved successful in creating sales during the campaign and for the future.

One of the utility companies, Portland General Electric Co., ran newspaper advertising in all the small town papers in its territory, and this advertising pretty well blanketed the territory included in the campaign. The other utility company, Northwestern Electric Co., put out a special broadside to its customers. Use was also made of the broadside available from the National Water Systems Council by both companies.

The campaign was "kicked off" in August at a dinner attended by over a hundred interested persons from the utility companies, the distributors and their organizations, and the dealers including heads of firms and salesmen.

The expenses of the campaign outside of the advertising, which was split as indicated above by the two utility companies, were borne in part by the utility companies and in part by the distributor members of the Council. The utility companies paid all the cash prizes in the two contests. The pump given away for the first prize in the slogan contest and expenses of the "kick-off" dinner and other incidentals were split up among the distributor members of the Council.

Exact returns from the campaign activity are not available, but all elements concerned appear to be very well satisfied. In other words, all dealers made some sales and the accumulated effect of securing prospects for future sales is not yet over.

Winning window in the dealers' window display contest won by Lester Ireland & Co., a hardware store of Hillsboro, Oregon

Rural Salesmen

The Agricultural Staff of the Southern California Edison Company, whose services have been advertised to the farm consumers of that company through the company publication "Electrical Times." Front row, left to right: F. H. Allen, S. L. Cipperly, J. S. Kinkele, Emil J. Smith, W. J. Keil. Rear row: G. L. Blanchard, G. H. Harman, M. R. Armstrong, and H. S. Thompson

• OFFERING A DOLLAR for any new uses for electricity on farms, the Southern California Edison Company has just issued a folder in three colors depicting one hundred uses of electricity on a California farm. The uses are illustrated in a center spread picture in color. The agricultural staff of the company finds this has stimulated a great many inquiries.

Codes in Operation + + +

[*Practical and significant suggestions from the code authority chairmen of this territory telling how to make code operation effective*]

Settle Down to Administration

Trade Practice Complaints Committees Shorten Procedure to Obtain Compliance. Wholesalers Start Operation. Bid Depository Centralization Urged

LOCAL administrative committees of the electrical contractors code authority are now being empowered to take on the duties of handling trade practices complaints in the 11th and 12th regions of the West. National trade practice complaints committees are delegated with authority to handle such complaints in conjunction with regional and local committees for the same purpose. Since there is no objection to the same personnel serving on both the administrative and the trade practice complaints committees, it has been found advisable and a saving of time and effort to select at least some members from the already appointed administrative committees to act in both capacities. Code authorities further suggest that not the entire administrative committee, but a smaller committee of five, not more than seven, serve in this capacity.

The committee should also have on it one or more non-members of the association, it is advised. No member of a committee is to serve in a case in which he is personally interested. Labor disputes or complaints are not to be handled until the methods for such are set up in area agreements.

With this trade practice complaint committee, (information as to its procedure is contained in an NRA bulletin, No. 7, and also No. 9059, released July 2, 1934) the handling of local troubles can be quickened materially and the important phase of administration and operation of the code hastened. It has been on this score that many contractors have grown impatient and skeptical of benefits to be derived under codes.

Naturally compliance with the code must first be persuasively *sold*, then too it must be given the support of the entire industry of the region. This latter takes much committee work and many meetings with other branches of the industry to win their cooperation. It is in this that many groups fall down, hoping that by some magic the code will be made to work, just because it is "law." Yet even good laws need the cooperation of the community to make them work.

This is what both Sam G. Hepler, chairman of the 11th region, and Lloyd Flatland, chairman of the 12th region, have found. Mr. Hepler just completed a tour of this region. Mr. Flatland plans to make such a trip soon.

Visions Wholesaler Cooperation

S. G. Hepler, who is proprietor of the Arrow Electric Co., electrical contractor of Seattle, in line with his duties, made a trip through the eastern part of his territory as far as Billings, Mont. In all, he covered 3,000 miles and studied the situation in 17 centers. This was during September.

He reports an unusual degree of interest on the part of the electrical contractors in their codes, and a serious desire to cooperate. There is, however, lack of understanding in some quarters as to the details of operation of the code, and considerable educational work will have to be done.

Now that the electrical wholesalers have obtained their code, Mr. Hepler is one of those who is of the firm belief that the two codes, when they have been coordinated, are going to offer the first real opportunity that contractors and wholesalers have had to get together and iron out some of the old causes of difference between them, such, for instance, as the wholesaler selling the industrial plant and other large users.

If the two codes work together as is expected, he visions the electrical contractors developing and handling sales of materials and supplies to all these classes of large users, virtually as the wholesalers' advance salesmen. The wholesaler can then devote his attention more to the problems of the contractor and to helping him, in much the same manner that the manufacturer cooperates with the wholesaler and his sales force.

N. W. GRAHAM

Wholesalers' Code Commissions Named

No details have been learned as yet as to the plans of operation for the Wholesalers' code. Al Nicoll, retiring president of the Pacific District, National Electrical Wholesalers Assn., before press time, just returned from a special meeting in New York at which the preliminary details for such operation were worked out. On his return he conveyed this information to the Pacific District convention at Del Monte, Oct. 25, 26, 27. N. W. Graham, Graham Reynolds Electric Co., 300 Third St., Los Angeles, a well respected and admired member of the industry of the West, was appointed to the code authority for the Electrical Wholesale trade. He was also named as a member of the trade practice committee of the code authority.

Districts have been set up and code commissions to serve for one year have been tentatively appointed, subject to NRA approval. Districts which are set up for the West, together with the commissions for each, have been announced by E. Donald Tolles, executive secretary, as follows:

District No. 37

A. C. Cornell, Graybar Elec. Co., Inc., 18th and Blake Sts., Denver.

J. C. Davidson, Hendrie & Bolthoff Mfg. & Sup. Co., 1635 17th St., Denver.

D. U. Gaston, General Elec. Sup. Corp., 425 W. San Antonio St., El Paso.

H. J. Gundlach, The Mine & Smelter Sup. Co., 17th and Blake Sts., Denver.

T. C. Tonkin, Casper Supply Co., 444 S. Center St., Casper, Wyo.

District No. 38

C. B. Hawley, Westinghouse Elec. Sup. Co., 43 E. 4th South St., Salt Lake City.

J. A. Kahn, General Elec. Sup. Co., 310 W. 2nd South St., Salt Lake City.

Sam Rosenfield, United Elec. Sup. Co., 117 W. 4th South St., Salt Lake City.

District No. 39

W. S. Anderson, Home Electric Company, 1316 "A" St., Tacoma.

H. L. Bargion, Westinghouse Elec. Sup. Co., 558 First Ave., S., Seattle.

Harry Byrne, North Coast Elec. Co., 206 Third Ave., S., Seattle.

J. I. Colwell, Graybar Elec. Co., Inc., King and Occidental Sts., Seattle.

W. J. Love, Love Electric Co., 732 Pacific Ave., Tacoma.

August Lutz, General Elec. Sup. Corp., 1212 First Ave., S., Seattle.

R. G. Reiniger, Globe Electric Co., Inc., 307 First Ave., S., Seattle.

District No. 40

E. A. Johnston, Brown-Johnston Co., 118-120 N. Lincoln St., Spokane.

V. E. McCain, Graybar Elec. Co., Inc., 152 S. Post St., Spokane.

H. B. Rogers, General Elec. Sup. Corp., 122 Monroe St., S. Spokane.

District No. 41

G. R. Bach, Westinghouse Elec. Sup. Co., Eighth and Davis Sts., Portland.

George Boring, General Elec. Sup. Corp., 205 N.W. 5th St., Portland.

O. B. Stubbs, Stubbs Electric Co., 33 N.W. Park Ave., Portland.

Sidney Ward, Graybar Elec. Co., Inc., Park and Flanders Sts., Portland.

District No. 42

C. H. Carter, C. H. Carter Co., 1817 Eighth St., Sacramento.

H. I. England, Gilson Elec'l. Supply Co., 1106 Madison St., Oakland.

J. F. Fenwick, The Hawaiian Electric Co., 900 Richards St., Honolulu.

D. E. Harris, General Elec. Sup. Corp., 1201 Bryant St., San Francisco.

A. H. Nicoll, Graybar Elec. Co., Inc., Ninth and Howard Sts., San Francisco.

District No. 43

J. S. Addis, Listenwalter & Gough, Inc., 819 E. First St., Los Angeles.

H. D. Burns, Standard Wholesale Elec. Co., 1951 S. Los Angeles St., Los Angeles.

H. Cook, Cook-Nichols Company, 482 S. Fair Oaks Ave., Pasadena.

Ross Hartley, The Electric Corporation, 110 N. Alameda St., Los Angeles.

B. S. Manuel, Westinghouse Elec. Sup. Co., 905 E. Second St., Los Angeles.

C. D. Russell, Associated Wholesale Elec. Co. 1111 Santee St., Los Angeles.

J. A. Sullivan, Coast Electric Company, 744 "G" St., San Diego.

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• NORTHERN CALIFORNIA CHAPTER of the National Electrical Contractors Assn. is planning a quarterly meeting at the Association headquarters of the San Francisco Electrical Contractors Assn., 1434 Howard St., San Francisco, on Nov. 9. The meeting will be an all-day session for members only with a full program of subjects to be discussed in connection with code operation in northern California, according to Lloyd Flatland, president of the chapter.

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• A SPECIAL MEETING of the Electrical Contractors Assn. of Alameda County was called for Thursday evening, Oct. 25, by Executive Secretary George Eldridge to outline the procedure proposed for the establishing of bidding practice rules and for reporting on committee activity working toward a central bid depository for the construction industry in the East Bay region. Lloyd Flatland, chairman of the 12th Region, Code Authority for the electrical contracting industry, was present to explain developments in the contractors' code operation.

Sam G. Hepler, chairman of the 11th region, code authority for the electrical contractors, who sees closer wholesaler-contractor cooperation ahead

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Portland Contractors Submit Labor Agreement

A public hearing will be held Nov. 2, at Public Service Building Auditorium, Portland, on a labor agreement submitted to the National Industrial Recovery Board by employees and employers in the electrical contracting division of the construction industry in the Portland region, comprising the counties of Multnomah, Clarkmas, and Washington in Oregon and Clark, and Skamama in the State of Washington. A representative of the NRA will conduct the hearing.

The agreement would provide minimum wages of $1.25 per regular working hour for journeymen, $1.50 an hour for foremen; and for learners: first year as agreed by learner and employer; 50 cents, 62½ cents, and 75 cents an hour, respectively, during each of the following three years. Overtime is set at double the regular rate. The agreement would provide a 5 day, 30 hour week, with a maximum 6 hour day.

George Draeger, field assistant, and Lloyd Flatland, chairman of the 12th region, contractors' code authority, who plan soon to make a tour of the region on behalf of code operation

First Central Bid Depository Starts

AFTER two months of preliminary work on details, the first central bid depository system under the provisions of the Construction Industry code, has been started in San Francisco and Oakland for the Northern California area. The office of the depository has been decided upon and the actual operation of the depository is expected before the middle of November.

The committee that has worked out the details is composed of Tom Harris, chairman of the local administrative committee for District 1, 12th Region, electrical contractors code authority; H. Bertram, plumbers code authority for the same ditsrict, Floyd Booe, manager, Northern California Chapter, Associated General Contractors; R. A. Daddisman, manager, contracting plasterers' bid depository, and others in the construction industry. Mr. Daddisman has been selected as custodian, and the quarters formerly occupied by a building materials exhibit in the Sharon Building, on New Montgomery St., between Market and Mission Sts., San Francisco, will be used for the first depository opened.

Establishment of a central bid depository that will be used by all crafts, is primarily for the sake of the economy resulting from sharing of the overhead rather than operating separate depositories. It is felt, however, that important by-products will be efficiency and respect for the industry.

The code activities of each craft will be kept entirely separate except for the joint bidding plan. Rules established will be in accord with those of each of the crafts under the master construction industry code. The committee which has worked on this plan feels that this one joint activity will do more to cement the entire construction industry together than any other factor, and that it will bring about a quicker and more effective operation of the codes of all of the crafts.

More details of its operation will be contained in the next issue of *Electrical West*. It is felt by the industry that this movement is of vital importance.

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• GRADING SYSTEM ASKED.—While of no immediate import to the electrical industry, a move on the part of the Consumers' Advisory Board of NRA will eventually reach the electrical manufacturers and through them wholesalers and dealers. The move is one requesting the American Standards Assn. to set up and define definite grade names and designations for goods sold over the counter. Much has been written in trade publications along this line for many years without any definite steps being taken.

EDITORIAL

NOVEMBER, 1934

An Inducement Rate

WORDS of California Railroad Commission President Leon O. Whitsell are a fitting compliment to the Pacific Gas and Electric Co. and San Joaquin Light & Power Corp. for the submission of a new rate which will benefit all consumers who meet these utilities half way on their proposition. It is a compliment which is echoed by the industry.

In order to meet the problem of surplus power, says Commissioner Whitsell, "the Commission has urged and encouraged in every way possible that the various electric utilities concerned try out promotional and experimental rates, in order to stimulate greater use of power and thereby lower the cost of service to consumers. Numerous conferences between the Commission's staff and utility representatives have been held to determine the extent of the surplus power, in an endeavor to find a solution to the problem. As a result, a number of striking promotional rates have been filed and approved by the Commission. The special rate now proposed by the Pacific Gas and Electric Co., however, constitutes the most drastic change in rate form so far filed with the Commission and undoubtedly will be the forerunner of similar offers from other electric utilities. This utility is therefore to be commended in taking such a forward step, one which should encourage and make possible a greater use of power at a lower cost to the consumer."

The industry too, commends this company for a rate offer that should stimulate the sale of lighting equipment and appliances, and restore to the buying public a taste of the convenience of using electricity freely again.

Employees and Management

FULL employee participation in various phases of the business has brought worthwhile results to many utilities. Some years ago the sale of capital stock to customers was expedited. More recently much new business has been stimulated by employee activity in submitting tips on sources of new load or leads for appliance sales. Similar results have been achieved in the field of safety and first aid.

With what is probably the finest personnel (taken as a group) anywhere, are not the utilities overlooking the latent possibilities of a huge reservoir of productive ideas? With a variety of contacts made daily by various employees, it is only natural that they are developing constructive thoughts and ideas on different phases of the business. For want of any means of expression, these frequently die a natural death. If a survey were possible, it should show a surprising amount of intelligent interest among the rank and file of employees regarding the problems of the day.

Would it not be profitable to make some attempt to bring these ideas out of hiding and to help develop them? It would mean participation in management by employees in a manner which should be of immeasurable value to both. This is particularly true today when the utilities themselves are not in an enviable position with much of the public, while the employees as individuals still retain the favor and confidence of those with whom they come in contact.

Association Support

AFTER two years of comparative inactivity, the Pacific Coast Electrical Association resumes operations this month with two joint conclaves devoted to business development and operation and economics. Loss of personal contact with consequent lack of opportunity for informal exchange of experience and opinion has been one of the greatest deficiencies during the period that the association has been dormant. With the resumption of group meetings these benefits of association activity will again accrue to the industry. They will be inconsequential, however, unless the conclaves are attended in force. They have been programed this year so that traveling expense will be cut to a minimum. Executive approval of reasonable attendance from every company and every section of the territory is essential for their success.

For the Man

NAPOLEON'S army was probably as poorly paid an outfit as that of any other nation, and yet his men followed his footsteps into gloriously insane campaigns which could lead but to the grave. Honest football critics know that it is not so much old alma mater that the boys break their necks for as it is the coach whom they learn to love and fight for in the days of training.

Business is no different. Men do not work for companies; they *do* work for a particular *man*. And what an opportunity this realization opens to an executive!

Every executive desires a successful, hard hitting, alert organization. Such an organization brings credit to his management of it, and profits to its opera-

tions. The force which gives his organization its unity and drive, its enthusiasm and its effectiveness emanates from his leadership. Other organizations, less favored in having executives who have a real appreciation of their opportunities to inspire their men, are listless and ineffective; there is a sluggishness about them that results in carelessness of detail and loss of repute and business. It is in organizations in which the employees work for the company that there is constant internal criticism of management.

On the other hand is the organization whose executives are alert to their employees' problems, sympathetic to them, loyal to their men and who give them strength and purpose by example and counsel. These are the successful firms, no matter how large or small they may be.

The company, with its assets and resources, is important, yes. But it is the manpower which gives it life. The successful executive will be the one who appreciates and cultivates this teamwork.

Leadership for the Future

THOSE in the light and power business believe that there is a vast wave of popular animosity and antagonism directed solely against their industry. Such is not the case. The spirit of public revolt, fostered by bewilderment and resentment, goes much deeper than that. Crisis, depression, economic breakdown or social unrest—call it what you will—has wrought a fundamental change in public attitude toward business, toward government, toward education, toward religion, toward life itself.

Analysed dispassionately, the situation existing in the country today, not alone as it affects the light and power industry, but in its relation to the future of the very structure of all business, prompts these questions among rational thinking people: Can America steer a middle of the road course politically, socially and economically without sacrificing traditional freedom of initiative, genius of scientific research and democratic self-government? Will political experiment, as exemplified by the New Deal, restore the spark to American enterprise? Will American society, American standards of living and American civilization as built up in the last two decades by science, technology and power production be sacrificed to political and economic theory and experiment?

With candor and realism, University of Wisconsin's president, Glenn Frank, in his new book "America's Hour of Decision" seeks to answer these vital questions. In a critical and non-partisan analysis, free from prejudice, he sets forth a rational viewpoint that should restore courage and revive optimism.

AS A major contributor to the present day American standards of living and mass production, and as a major benefactor from any future expansion of both, the electrical industry will do well to study the philosophy he advances.

Here, for example, is a sample: To avoid statism, which is Dr. Frank's term for government in business, the nation needs a clearcut and comprehensive policy regarding the relation of government to private enterprise. There is no longer any question of control or no control but simply of the nature and extent of this control. This definition of policy should come from business itself. "If the leadership of business, industry and finance," he says, "will come to bat with a willingness to face the new problems of this new age of science, technology and power production with a socially responsible program that will prevent the ruthlessness and protect the ruggedness of individualism, no political leadership on earth can win the suffrage of American people for a program that smacks either of Facism or of Communism."

LEADERSHIP with sustained popular support, he contends, must provide economic satisfaction and economic security for the masses. The ability to provide such leadership has been demonstrated in the past, appears frozen for the present. This security is quantitatively possible through the application of an economics of plenty based upon the capacity of American industry and American agriculture to produce. But old economic policies harnessed to new economic processes will not serve the purpose. Nor will an economics of plenty based on science, technology and power production operate in low gear. And "if industry does not give us an economics of plenty, government will give us a politics of scarcity." Already we have had a taste of the latter in fallow acres, plowed-under crops, slaughtered livestock and idle machines.

AS THE motivating agency for the economics of plenty which Dr. Frank defines, the electrical industry can assume responsibility and leadership for its accomplishment. The industry has everything at stake—a future more fruitful and brilliant than its past or ultimate strangulation due either to popular antagonism or encroaching statism. Failing to accept its share of responsible leadership, it may face a future "open to the allurements of irresponsible leadership which, in reckless willingness to try anything once even if historic experience has repeatedly proved its futility, will promise the moon to the millions in return for a handful of votes."

Significant Trends + + +

[*Signposts which point the road to improved business or method, brief, pertinent, useful hints as to HOW someone has blazed a new trail.*]

Salient Ideas Told Southwestern Inspectors Convention ...in Wiring Rules

SIFTING the important and significant features from the Sacramento convention of the Southwestern Section, International Assn. of Electrical Inspectors, held Sept. 24-26, the following resumé brings into focus those points which will be of use and guidance to the industry of the West:

President Karl Bickel, Martinez, California inspector, was brief and pithy in his presidential address. He made three recommendations: (1) More local chapters such as the very successful one in southern California, so that inspectors can meet oftener and derive a better understanding of their work and of interpretation of the code by interchange of idea and experience. (2) More education in wiring rules should be required of electrical contractors and electricians, perhaps by decree of the ordinance itself in each city. Meetings should be held at regular intervals, with attendance required of registered electricians who hold a city license. (3) Sales of unlisted and unapproved electrical appliances should be prohibited by a state law, since with such ordinances only in a comparatively few cities, at present, the suburban towns are made the dumping ground.

President Mahan of the I.A.E.I., among significant statements, said: (1) That Underwriters' Laboratories in the formulation of or revision of its standards should have the benefit of inspectors' experience. (2) Plug fuses will be labeled by the laboratories after the first of the year. (3) The Code lessons being issued with the Bulletin are having a material effect in promoting uniform interpretation. (4) The revision of the National Electrical Code proposed by the light and power group should be carefully considered from its practical

Arthur Veit, newly elected president of the Southwestern Section, I.A.E.I., is Los Angeles County Electrical Inspector

application to the realities of inspection. (5) Trial installations conducted by any group in the industry, in defiance of the procedure set up by the electrical committee, are unfortunate and dangerous, he said. The American Water Works Assn., for example, has become aroused over the experimental installations in one district which further uses the water system as a current carrier.

Secretary Tousley, in the absence of any utility group representative, distributed, without recommendation, copies of the revision of the National Electrical Code as proposed and prepared by the light and power group. A committee was appointed by President Bickel to study this version of the code and to report to the membership.

After Arthur Abbott's paper on uniform sales ordinances, recommending strongly the recognition of the Underwriters' Laboratories, instead of setting up local or other standards, discussion of sales ordinances was general. It was brought out that the co-operation of retail merchants and the Better Business Bureau, was vital to the successful observance of a sales ordinance. Where merchants are hostile, enforcement, it was felt, was difficult if not impossible.

J. A. Smith's (electrical cord manufacturers) suggestions for publicity for safety were eagerly received and many of his yellow posters will be used by California inspectors in addressing clubs and schools in their home towns.

Ray J. Larabee, San Francisco Underwriters' Laboratories assistant engineer, described the West Coast testing of air heaters, enclosed switches, radio sets, heater cords for (1) suitability and conformity with standards, (2) mechanical strength and protection, (3) insulation and dielectric qualities, (4) heating and (5) arcing effects.

Arthur Kempston, National Electrical Products Co. engineer, told of improvements in armoured cable which have removed former causes for complaint, and advocated fittings be purchased from the same firm as the cable to in-

Left: Karl Bickel, of Martinez, president, who presided at the Sacramento convention. Right: Don Ray, of P.G. and E.; J. Smith of the cord manufacturers; Ralph Wiley, chief of San Francisco, and Charlie Shipman, contractor

Left: E. J. Crawford of San Joaquin Power and Arthur Kempston, engineer, who talked on armored cable. Right: O. W. Newcomb, Long Beach inspector who tried hard for next year's convention but gave way gracefully to San Diego

sure better fit. He cited results of short circuit tests which would indicate that armoured cable will withstand any ground normally imposed upon it where the cable is used for grounding.

Tuesday morning, A. Penn Denton, Rigid Conduit Association, drew applause when he said that manufacturers of conduit and fittings are working toward a single metallic coated standard for boxes and fittings and rigid steel conduit. Mr. Denton as much as called the industry pikers for wasting all of its energies looking for cheaper wiring instead of selling better wiring.

In the period from 1910 to 1930, during the period of the greatest growth of the electrical industry and of the nation, the four branches of the industry, he said, had failed to measure up to their responsibilities to protect the consumer by selling him sufficient wiring to serve his needs or to take care of the increases in his use. The real economy of a wiring installation, he said, is measured eventually by its maintenance bill. He advocated that the code be made more valuable, as is being done with building codes, by (1) defining the suitability of various wiring methods, (2) recognizing that progress does not come from adding flimsier wiring methods to those already available, (3) putting more stress upon good engineering design and competent workmanship. Then the next five years will mean more to the electrical industry than any past ten years in its history, he claimed.

Accidents during the past year formed a part of an informal discussion session. San Diego's A. E. Johnstone told of two spectacular cases, one in which a judgment of $20,000 was brought against the owner of the property even when the tenant was responsible for cord wiring which had killed a man. This case has been very effective in convincing other property owners to have their wiring brought up to date.

How the code of fair competition for the electrical contractors affects the inspector was told in a unique manner by Lloyd Flatland, 12th region chairman, Code Authority, and three of his "team mates." He declared emphatically that the contractors' code is being made to work and that when it works contractors build up the job rather than tear it down and will, in this manner, solve many of the problems of enforcement which have been so difficult for inspectors in the past. Mr. Tousley urged complete support of the contractors' code and told how that Code Authority officially had endorsed the National Electrical Code as the minimum of installation performance.

George Topham, Crouse-Hinds Co. representative, showed slides and read a paper, descriptive of the development in explosion-proof fittings. He urged that inspectors require that the installation of the fittings, themselves designed to be hazardproof, be made in the manner in which they are intended to be installed, otherwise the explosion-proof values may not always be derived.

F. J. Lisberger and R. R. Cowles, engineers, Pacific Gas and Electric Co., jointly gave a discussion and displayed an exhibit of inverted meter sequence installations designed to stop theft.

Mano Zann, of the State Contractors License Bureau, who told how the Construction industry is being welded together by its code

Mr. Cowles pointed out that there is a hazard to property and life in current theft in that inexpert consumers who tamper with the wiring will not take proper safety precautions.

R. H. Manahan, chief of the Department of Electricity, Los Angeles, urged utilities throughout the area to adopt as near as possible uniform mountings and installations. He also recommended that motor loads be studied and that the limit of amperage permissible on inverted sequence metering be raised from 100 amp. to 160 amp. Diversity tests, he said, had proved that 50-amp. meters had been able to withstand amperages up to 160. He pointed out that in any localities of the West where air heating is general and ranges and water heaters are installed a 60 per cent demand factor has been found to be sufficient. He also pointed out that any work that could be done jointly by the utilities and the inspectors to eliminate the unsightly meter boxes on the outside of the houses would be a public benefit.

In answering a question by Mr. Manahan regarding the standardization of service wire sizes, Mr. Lisberger brought out an interesting point. Rubber-covered wire, he said, varies. In boiler rooms under adverse conditions of heating, special wires carrying higher percentages of rubber have been operating under conditions of 180 deg. F. without deterioration of the rubber. With such quality wire, he pointed out, it might be possible to use smaller sizes of service wire without harm or danger.

Ben Hill's clearing house committee report advocated several changes, the most important of which had to do with sequence metering, the placing of underfloor duct on the level with the surface of the concrete in which it is embedded, and recommendations for increased amperages being permitted in electric metallic tubing. This, however, was turned down and a fact-finding report asked of the Underwriters' Laboratories before recommendation is given. This fact-finding report is asked to determine the suitability of electric metallic tubing in larger sizes to withstand mechanical and electrical conditions.

Herbert Ufer, of Underwriters' Laboratories, gave an interesting report of last year's convention at the Chicago Century of Progress and then described the Underwriters' Laboratories new marking for small parts with the small letters U. L., surrounded by a circle so that inspectors may tell at a glance whether all fittings are listed. He also described the progress of the Laboratories on the coast, now occupying an entire building, with three engineers in charge of examinations.

Routine business was finished up and the election of officers held. Arthur C. Veit, Los Angeles County electrical inspector, was named president; C. T. Coyle, city electrical inspector, Fresno, first vice-president; H. V. Dobson, city electrical inspector, Santa Barbara, second vice-president and C. W. Mitchell, re-elected secretary-treasurer as usual. The executive committee is to consist of Karl Bickel, of Martinez; H. N. Beecher, supervising inspector, Los Angeles, as active member; H. C. Rice, Southern California Edison Co., as associate A member, and D. I. Cone, Pacific Telephone & Telegraph Co., San Francisco, as associate B member. Carl Hardy was named executive council representative with R. A. Manahan as alternate. San Diego was chosen as the next convention city, since in 1935 the California Pacific International Exposition will be held there.

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• "SHODDY, dangerous and unserviceable electrical gift goods," says Santa Barbara News, "will be banned from sale in Santa Barbara, Calif., by the terms of a new ordinance prepared by Harry V. Dobson, city electrician." The majority of electric goods retail dealers in the city have petitioned for the adoption of the ordinance. The ordinance is that sponsored by the Pacific Coast Electrical Bureau as the standard type of ordinance for sales control.

...in the Motor Shop

Claim Fastest Coil Winding Forms

Coil winding forms are the pet development of practically every motor shop. Some of these achieve the dignity almost of a work of art. Such a set of coil winding forms have been made in their own shop by Backstrand Bros., of Riverside, which Clarence Backstrand claims are "positively the fastest that can be made."

As shown in the illustration, the steel shaft supporting the adjustable members is marked in ¼-in. divisions so that the coil can be measured up and the form set up accurately and quickly. The coils are then wound on a gang of six slots. The rods holding these slotted spacer bars move on an eccentric shaft so that when rotated toward the center, pressure is relieved from the wound coils and they can be lifted off very quickly. These spacer bars are welded to tubing which is kept in place by a ball bearing against a spring. They lock in or out of line. The form is adjustable in each direction with lock nuts to hold the various members in place.

The larger of the two forms is provided with a small device similar to the familiar "come along" which grips and holds the wire or lead at the start of the coil winding.

The device was made and welded in the Backstrand Bros. own shop. Tests have shown that they can wind a complete set of coils for a 5-hp., four-pole motor in 30 to 40 minutes. They can wind six in a gang or two gangs of three each or three gangs of two each without moving from the winding lathe. Coils up to as large as required for a 60-hp. motor can be wound on these forms.

Goes Into Wholesale Industrial Business

The Industrial Electric Service Co., headed by Walter W. Campbell, has long been engaged in servicing the industrial plants in the Gray's Harbor district, in and about Aberdeen, Wash. These plants are principally saw mills and allied plants such as pulp plants, furniture and veneer factories, etc.

For the last few years, in addition to doing the electrical contracting and repair work around these plants, Mr. Campbell has been working more and more into the wholesale function. While this district will not support an electrical wholesaler with complete stock, and is ordinarily served from Seattle or Portland, there does seem to be a place for a small industrial service wholesaler, who will carry quickly obtainable stocks of such supplies and parts as are required in the operation of these plants. The Industrial Electric Service Co., reports that this is practical, and that the wholesale end of its business has been steadily growing.

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Display Board

A cutaway motor, split in half so as to show the various parts and thereby to explain the qualities of the particular make, and another motor with a brake horsepower testing device, make up an interesting board which is used by North Bay Electric Works, of San Rafael, in the sale of motors to customers. Pamphlets describing the operating characteristics of the motor are also kept close at hand.

• Angelus Electric Co., whose manager is J. C. Wigle, has moved into a new corner location at 4173 Whittier Blvd., Los Angeles, where a floor space of over 1,500 ft. offers greater accommodations for motor display and shop. The firm, specializing in industrial work and building of special motors, generators and equipment, has operated for several years in Los Angeles. This recent move was from 1219 Herbert St., which location it occupied for the past four or five years. George Smith is in charge of the shop division.

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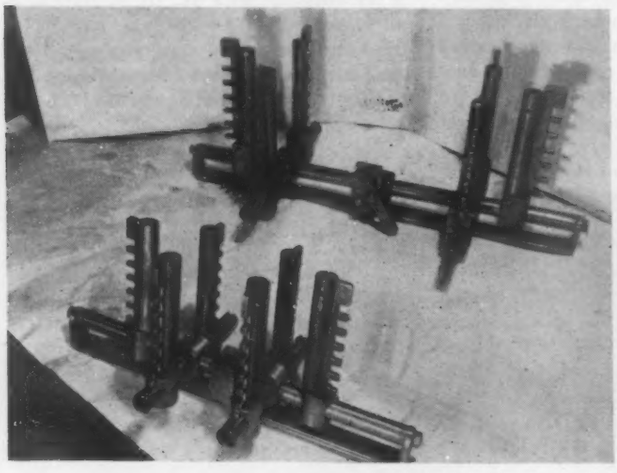
...in Construction

Editor's Note: While the following is perhaps an exceptional case, yet it does illustrate what a wideawake contractor can often develop in the way of increased business in a modernization job. Shown the benefits of electricity, customers invariably want more facilities to use it freely.

Quake Opens Walls, Contractor Sells a Job

An earthquake made the opportunity but Gus Norberg made a job of it. This in a few words describes an unusual wiring installation at a large residence in Los Angeles recently done by the Johnson & Norberg Electric Co., of Los Angeles.

The large residence was severely damaged by the earthquake. Previous to that time it had been considered very adequately wired. Using his initiative, however, Mr. Norberg pointed out that since the plaster would be stripped, the owners should take advantage of that opportunity to add a number of feaures which would be too expensive or impracticable of installation after the plastering was once in. As the result the total wiring job ran to about $30,000 and every bit of it was legitimately



At left: the adjustable coil winding forms developed by Backstrand Bros. Below: the motor display board at North Bay Electric Works, referred to above

necessary to the full utilization of electricity in a modern large home.

All wiring, including bells, telephones and signal wires, was installed in conduit. Signal and bell wires were brought to a main distributing panel where they can be interchanged. A twelve-conductor cable was used for signal wires to each main room so that any desired signal can be installed immediately, or changed at will, by changing connections on a strip panel.

A Cannon five-circuit automatic code signal relay, with chime calls, is located at all outside doors; one chime for the rear door, two chimes for the front, three chimes for the side door, etc., so that servants may know instantly where the call is coming from without going to the annunciator. Two specially built Couch 30-button automatic reset annunciators, with wide spacing for lettering drops, were installed. A 5-amp. Filterphone unit for direct current was installed to supply annunciators and house phones. A Doorman loud speaker system from the rear door to the kitchen and second floor servants' department is another feature.

There is an 800-amp., main switch, with a 400-amp heating load, and 300-amp of lighting load. There are 36 electric heaters installed.

Heaters in the main rooms are controlled by contactors with switches in the basement so that the watchman may turn on the heat in occupied rooms early in the morning. There are pilot lights on all heaters.

Particularly adapted to the peculiar switching and control of this job were the Despard switches and fittings. They were used throughout, often ganged up to as many as 20 in a gang. The switches were provided in different colors so that the owners could more easily distinguish the various circuits or controls on the large gang controls. All plates were made up especially. In this case they were gold plated and every switch was engraved with lettering above it, designating the lights or plugs which it controls. Convenience outlets are two-circuit duplex type with one of the outlets controlled on the switch and the other kept energized at all times. Even the plug plates were engraved.

A master switch system was installed throughout the house. Edwards flush calls were used on all signals. One-inch conduits were installed to all main rooms for the public telephone system. Pull boxes were provided in the basement, all numbered and listed, for the circuits they contain. In the kitchen was an 18-in. Ilg ventilating fan. Dimmers were installed on some of the main room lighting coves.

What to Modernize

Details of the modernization loans are available everywhere. What concerns the electrical contractor and dealer is —"How can I apply it to my business?" "What can I suggest to my former customers, to any new prospects that I find, in the way of modernization and rehabilitation?" From the FHA bulletin 103, to "Architects, Contractors, Building Supply and Other Merchants", were taken the following, (to which are added a few suggestions of our own):

Farm lighting plants and equipment.

Domestic water heaters, if non-detachable.

Heating control wiring.

Automatic stokers, and ash removers, if permanently attached.

Lighting fixtures if integral with wiring.

Electric pumping systems.

Air conditioning equipment, if built-in.

Ventilating equipment, fans, blowers, if built-in.

Ranges and refrigerators, if built-in or permanently connected.

Built-in radio systems.

Sound systems built-in to school, church, club, hotel or hospital.

Antenna system for apartment houses, hotels.

Wiremold or Xtensionduct additions to wiring systems, to provide convenience outlets with safety, new circuits, switches for ceiling lights, radio outlets.

• PRACTICING WHAT IT PREACHES the Portland General Electric Co. renovised its display rooms, lobby, building front and, according to Orr Crites, merchandising manager, business has nearly doubled over that of last year for the months of September and October. Thus the company is able to say from actual experience what benefits can be derived from renovising of quarters. It is something which the contractors in the Portland area can also point to as concrete example of business improvement from well-equipped and electrified business quarters.

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• ELECTRICAL CONTRACT for the wiring of a new five-story science building to be erected at Washington State College, Pullman, Wash., has been awarded to the Stewart Electrical Co. of Seattle, at a bid price of $8,415.

...in Lighting

Certified Lighting for Fall Campaigns

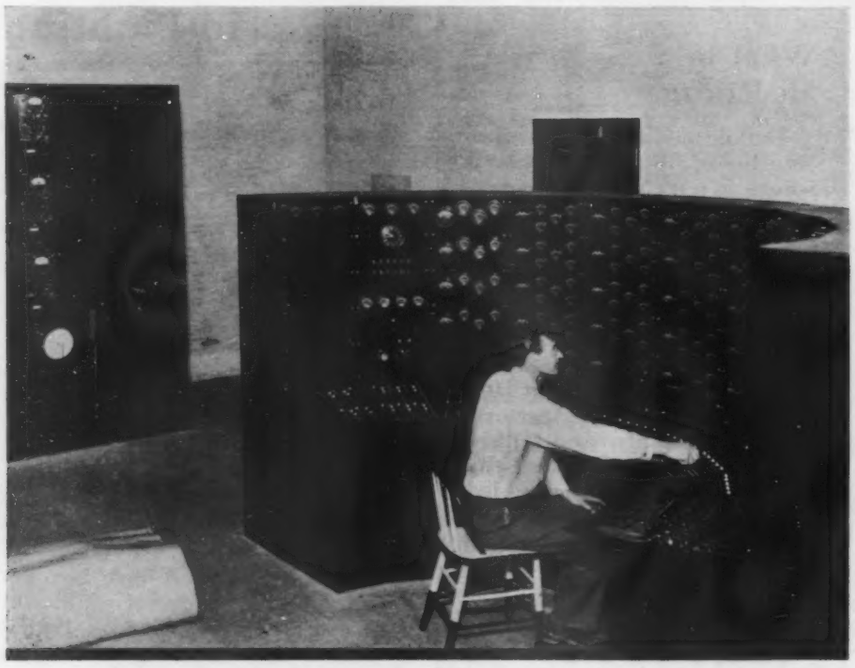
To assure customers that they are buying lighting equipment which will give satisfactory illumination during the Better Light-Better Sight campaigns this fall, the Illuminating Engineering Society tag of certification will include the monogram of the Better Light-Better Sight Bureau Thus all portable lamps bearing new tags will meet the specifications of the Society.

The new tags will consist of a double card, one side of which will carry the Better Light-Better Sight insignia and the other the I.E.S. certification. The inside will carry an explanation of certification and space for the manufacturer's name, price and catalog information.

Typical sample of explanatory matter is the following, taken from the tag on the new study and reading lamp:

"*Study and Reading Lamp*: This authorized tag certifies that samples of this Study and Reading Lamp have been selected periodically by Electrical Testing Laboratories, New York, N.Y., and have been found *by test* when equipped with a 100-watt standard incandescent lamp, to comply with specifications for I.E.S. Study and Reading Lamps formulated by the Illuminating Engineering Society."

Replica of new I.E.S. certification tag for portable lamps



Saving in construction cost and economy of space are features of this design, the size of which is well illustrated in comparison with the operator. Control for six 33-kv. lines, four banks of transformers, thirty-two 4.6-kv. feeders and eight street lighting feeders are placed within arm's reach by this type of construction

Miniature Control Board Saves Space and Cost

By J. D. LAUGHLIN
Design and Costruction Division,
Los Angeles Bureau of Power & Light

MARKED economy of space and savings in construction costs were possible by the use of miniature control and metering equipment in the new Highland distribution station of the Los Angeles Bureau of Power & Light. This station, located in the heart of Hollywood where space is at a premium, is of the indoor type, which adds to the necessity of utilizing all space most effectively. The station is laid out for an ultimate development of six 33-kv. incoming lines, four 3-phase, 33 to 4.6-kv. transformers, 32 4.6-kv. regulated feeders and eight street lighting feeders.

Slightly less than half the ultimate capacity of the station has been installed at present. Several changes from previous standard types of construction were made by the engineers of the bureau in order to take better advantage of the space available. Among the innovations were the use of 3-phase, 33-kv. to 4.6-kv. power transformers with all transformer leads in lead covered cables wiped to the transformers; metal-clad, 4.6-kv. bus and switch gear; and miniature control and metering equipment.

The control and meter board for this station was designed by the engineering staff and fabricated in the bureau's shops from parts and equipment purchased from various manufacturers. The board, of the combined bench and meter board type, is semi-circular in form and so designed that the operator can sit at the center of the semi-circle and read any instrument or reach any control switch on the board. All meters are seen directly in front, thus eliminating reflections and paralax. The inside radius of the control board is 2 ft. and the radius to the meter panels is 4 ft. 6 in.

At the rear of the meter panels there is a 15 in. enclosed wiring space with hinged doors to facilitate inspection and repair. The board was built for the ultimate development of the station and has been wired and equipped for future additions with the exception of the meters for the last transformer and the last eight feeders. Due to the relatively inexpensive meters and equipment used it was found that a large number of future positions could be economically equipped and save the expense of the necessity of working over the control board as new lines and feeders are added to the station.

The board is built on a skeleton steel frame, fabricated by arc welding. The panels, constructed of No. 10 stretcher leveled furniture steel, are removable with the equipment mounted thereon without disturbing other parts. Steel panels were substituted for ebony asbestos panels previously used because the former could be drilled and finished with much less labor. The meter panels are 15⅜ in. by 38 in. Control panels are wedge shaped, being 15⅜ in. wide at the back, 7 in. wide at the front, and 2 ft. 6 in. deep.

Ammeters and voltmeters used are 3¼ in. in diameter; the wattmeters and reactive kva. meters are 4⅜ in. in diameter. Meters have a guaranteed accuracy of 98 per cent of full scale which is considered sufficiently accurate for switchboard service. The arrangement of the meters and control equipment is illustrated in the accompanying photograph.

All current windings of the meters are designed for 0.1-amp. full scale and all potential coils are 150 volts full scale. The small currents required permitted the use of No. 16 gage wire for all meter circuits. In the current circuits, standard 5-amp. secondary current transformers were required for protective relay circuits, and also for integrating wattmeters where used. The standard relays are located close to the current transformers, 5/.1-amp. current transformers being installed with their primaries in series with the relays. Secondary circuits of these auxiliary current transformers are connected to the control board through multi-conductor lead covered cables.

All control circuits to the board are designed to operate on 1 amp. or less, relays being installed at the equipment to handle higher operating currents. For the 33-kv. circuit breaker controls, 15-conductor No. 16 gage cable is used, one cable carrying the controls for the two circuit breakers on a line. On the feeder positions, 30-conductor cables are used, one cable being required per position. This cable carries control and indication wires for the circuit breaker, sector disconnect switch, regulator, and potential and current wires for the meters. Cable having a special rubber

insulation of high insulating value is used for the control circuits.

The 15-conductor cable requires a conduit space equivalent to three No. 12 rubber covered wires and the 30-conductor cable requires space equivalent to six No. 12 wires. Control cables are run on a system of steel trays to the proximity of the equipment controlled and the balance of the way in conduit. All cables are brought to telephone type terminals at the board where soldered connections are made. Soldered connections are also made at the control switches, thus eliminating several possible sources of trouble due to loose connections.

This board occupies a space 11 ft. 6 in. by 5 ft. 9 in. as compared to a space 24 ft. 6 in. by 7 ft. required for the bench and meter boards of the conventional design for a station of the same size. Its estimated cost as compared to boards of previous design using conventional large size meters and equipment for the same size station is as follows:

Frame and Panels.....35 per cent
Meters .....70 per cent
Control Equipment .....80 per cent

The use of miniature equipment also permits appreciable saving in control wire and conduit. This miniature control board has proven so satisfactory that the bureau engineers have decided to use it on another station now under construction.

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Northwest Power Studies Started

Consideration of power markets for existing power in the Pacific Northwest as well as for the output of the Grand Coulee and Bonneville projects was begun at a meeting held in Portland, Ore., Oct. 3 under the direction of H. V. Carpenter, dean of engineering, Washington State College, and chairman of the power committee of the Northwest Regional Planning Commission.

Agreement was reached to conduct research and study by means of special subcommittees on the following subjects:

(1) Use of power in pumping water for irrigation.

(2) Study of metals, wood products and chemicals with a view to bringing such industries to the Northwest as heavy potential power users.

(3) Acquisition of land for industrial sites and their control.

(4) Conferences with private and municipal utilities on what basis power can be sold to distributing agencies.

(5) Study of the possibilities of home heating as a market for electric power.

Grand Coulee to Have Electrified City

Construction of 25 miles of 110-kv. line from Coulee City, Wash., to the Columbia River and erection of 300 completely electrified homes are being undertaken by the Mason-Walsh-Atkinson-Kier Co., general contractors for the Grand Coulee Dam. Estimated cost of the transmission line is $100,000.

Of the 300 houses to be erected at Mason City at the dam site, six will be built to specifications formulated by experts of Washington State College so that experiments in electrical heating and electrical costs can be conducted. In addition to electric cooking, refrigeration and water heating, the houses will be completely heated by electricity. An order for 1,500 Wesix fan-type heaters has been placed with the Graybar Electric Co., Inc. The heaters are rated at 1,250, 2000, and 3,000 watts. The heater contract approximates $40,000 and covers approximately half of the total number which will be required for building the electrified city.

Power contracts have been executed by the MWAK Company with The Washington Water Power Co. for construction energy. They call for 10,000-kw. at 110 kv. at $10,000 per month plus 2.5 mills per kw.-hr.

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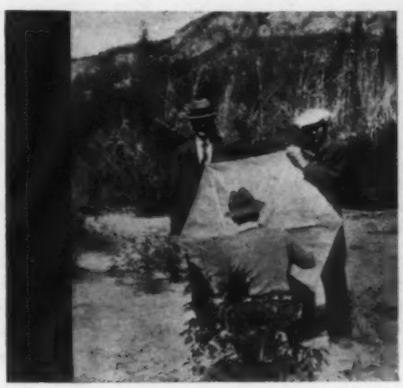
Kite Bridges Swift River for Line Crew

Aids in Construction of Transmission Line

Stringing the Bridge River crossing span of a new 53-mile transmission line in the interior of British Columbia presented a difficult problem to the engineers of the British Columbia Electric Railway Co., Ltd. At the point of crossing, the river flows swiftly, the distance from shore to shore being approximately 300 ft.

As a boat was not immediately available, another means of carrying the line across the stream had to be evolved. The use of a kite was suggested by one man in the line crew who had extensive knowledge of kites and their use. Under his supervision, a 6-ft. kite was constructed and rigged to carry a light line. The kite was flown against a prevailing wind and landed on the opposite shore so skillfully that it came down within 30 ft. of the desired location. The light line carried by the kite was used to haul a heavier line suitable for pulling the transmission line cables across the river.

The accompanying illustration shows the kite in the process of construction and its flight across the stream.



...in Merchandising

Graybar Announces New Distribution Policy

Announcing a new policy in distribution, Graybar Electric Co. is discontinuing all of its private brand merchandise and hereafter will sell only appliances bearing the names of nationally known manufacturers. This new policy supersedes one on which experiments were started twenty years ago in which household appliances carrying the company's own brand, then "Western Electric" was started. Gradually the Graybar name was given to a whole line of domestic appliances made by various manufacturers under Graybar specifications. The company was more successful, however, in selling other makes of appliances which it had continued to distribute as a wholesaler.

Graybar has recently taken on various lines of outstanding products in the domestic appliance field for distribution in limited territories. These include Kelvinator and Leonard refrigerators; Royal vacuum cleaners; Meadows and Thor washers; Everhot, Hankscraft, Manning-Bowman Proctor, Silex, Star-Rite, Sunbeam, Nesco and Waters-Genter appliances.

Local Graybar branches will make up a full appliance line from these products selected for the particular territories served. Attention will be concentrated on the operation of Graybar's highly specialized distributing system. The Graybar tag will mark all merchandise distributed and will become in effect the symbol of a two-name guarantee of the manufacturer and the national distributor.

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Ray Turnbull Pilots Sales Shows in West

HEADED by that so well known expatriate, Ray W. Turnbull, now assistant sales manager of the merchandise department, General Electric Co., Bridgeport, a troupe of his old cronies and present representatives here in the west, toured the Pacific Coast region in a series of "one day stands" last month to tell the selling ideas and plans of the company's new line of merchandise for the Fall and Christmas trade. Meetings, each taking a full afternoon and evening, were held in Los Angeles, San Francisco, Portland, Seattle and Spokane, to which dealers and distributors, and central station salesmen were invited.

Characteristically the individual appliances were dramatized, and a grand finale at the end of the show displayed them all in a final blaze of glory. The meetings were conducted by Harry C. Gerster, merchandise manager. G. E. Supply Corp., for the western area, who introduced each "act". George West, merchandise manager, G. E. Co., San Francisco, introduced the new, quiet electric fans. The market, he said, is large, since two out of three homes still are fanless. Closed kitchens in winter, especially need fans.

Sunlamps, said Steve Winter, specialist in this line, replenish the body's starvation for sunshine. A simple rating card will help salesmen demonstrate and sell the various types of sunlamps. He urged dealers set up a rental service too; it makes many sales.

Joe Burns, outlined clock history, and set a minimum of three clocks per home as the measure of a vast market. Good suggestion was to sell a clock along with every other major appliance—it only increases contract payments a few cents. C. W. Griffin, radio specialist, dramatized the selling appeal of all-wave receivers. Displays and advertising will stress the world of subjects available to owners of such sets.

Ray Turnbull closed the afternoon meeting with a talk which made his auditors realize what has been missing in sales inspirational talks since he was promoted East. Revitalizing old and tried principles of selling he urged: (1) make the customer comfortable, (2) get her in agreement with the sales proposition, (3) treat the merchandise with respect (mother it), (4) create a desire to possess—(a hint; display irons from an ironing board), (5) demonstrate thoroughly.

D. E. Harris, vice-president, G. E. Supply Corp., San Francisco, opened the evening meeting, paying tribute to utilities for low rates which have made Pacific Coast appliance sales records remarkable. John Wicht, sales manager, home laundry equipment department, Bridgeport, introduced the new line of vacuum cleaners and washers. Ray Turnbull showed the new features in heating appliance lines—irons, toasters, percolators, coffee sets, a flat cooker, chafing dish, waffle irons, a razor blade sharpener, the mixer and a fan type heater.

Christmas - Lights - Gifts - Sales

SANDY Pratt, in the realm of outdoor Christmas trees, has earned as substantial a reputation as Santa Claus has for gifts, at least in California. Denver, "Christmas City of the World", Salt Lake City, Ogden, Portland, have become nationally known for their colorful decorative lighting of trees and homes. From the civic aspect alone all electrical folk should do their share in creating such cheer and warmth at Christmastide.

Fortuna, little city on the coast near Eureka, has already opened its campaign. Last year 100 per cent of the population decorated an outdoor tree, met at the post-office, then went around town and inspected each other's trees. Fresno will light a mile and a half of trees this year. Sixty thousand people drove out to see them last year. What this meant in gasoline, ice cream, hotels, shows, was considerable. Electrically it meant lamps, wire, fittings, kilowatt-hours.

A journeyman electrician, just starting in business last year, asked Mr. Pratt for suggestions. He told him to canvass a certain residential district from door to door, offering to decorate the outdoor trees. As a by-product he was asked to install convenient outlets, repair appliances, install new wiring. His wife gladly exclaimed that it had made a salesman out of him.

Decorate a tree, therefore. It will be contagious. Others will follow suit. Sandy Pratt's tree, (shown above) has been mother to thousands of baby trees. Every year it requires two extra feet of wire on each string, more sockets, more lamps. Lighted trees will stimulate appliance sales, too. Try it.

New Range Taps Low-Income Brackets

Designed to be competitive with any fuel-type range and to tap a new market of 6,000,000 American homes is the new "Cardinal" model electric range manufactured by Westinghouse to retail at $61.25 f.o.b. Mansfield, Ohio. Companion to the range is a tank type water heater to sell at $57.30. Significance of this new development is explained by Reese Mills, Westinghouse range and water heater department manager, as follows:

"According to today's statistics 14.35 per cent of families in the United States have annual incomes of more than $2,000. There are 47.32 per cent of our families having annual incomes of more than $1,000 but less than $2,000. The remainder, of 38.33 per cent of families earn less than $1,000."

The new range has automatic temperature control, full-sized 2,000-watt oven, and three surface units (two 1,000-watt and one 1,800-watt). Many radical departures from the sterotyped production procedure have been made in the new product. The main body is welded into one sheet as is done in automobile production. Finish is "Dulux," a new baked-on synthetic enamel for use under high temperatures. Cooking top, back and side splashers and oven door frame are made of "Sanalloy," a new metal that precludes crazing and chipping.

Westinghouse has announced that these two new products are a portion of its contribution to the problem of absorbing the present and potential power-generating surplus of the utilities. Distribution is to be broadened as the first step in marketing procedure.

New Westinghouse "Cardinal" range to retail at $61.25

... in Contemporary Reading

• Capacity at $43 per Kilowatt, *Electrical World*, Oct. 13, 1934, describes the Taunton, Mass., 7,500-kw. addition to a steam generating station. The low unit investment in the plant more than offsets the relatively low fuel efficiency. Simplicity and reliability are two fundamental factors in the design.

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• Makes Power Factor Correction Pay, *Electrical World*, Oct. 13, 1934, should be of interest to industrial and power sales engineers as interesting data are set forth on industrial plant energy useage and because the complete analysis of the power factor correction scheme is set forth. Estimated saving, $28,000 from a $21,000 investment.

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• Control by Tap Changers, *Electrical World*, Oct. 13, 1934, describes the use of a regulating transformer which employs tap changing under load as a means of introducing a variable phase displacement at suitable points in a high tension network to control the division of actual power between circuits, using only one tap-changing equipment and its accessories. Interesting from the potential economy in phase angle regulation that is possible from such equipment.

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• Thyratron Tubes and Relay Practice, *Electrical Engineering*, Oct., 1934, by Dr. R. Wideroe, of Oslo, Norway. This paper suggests the use of grid-controlled, gas-filled electronic tubes as component parts of relays for the protection of transmission lines. A discussion of both normal and high speed relay design using thyratron tubes it is interesting because it indicates European thoughts in transmission engineering.

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Motor and Generator Standards, 1934 edition, published by the National Electric Manufacturers Association, is now available at headquarters of the Association, 155 East 44th St., New York City, N.Y. Price $2.00 per copy. Revised and brought up to date, the 1934 edition contains much information not heretofore published and constitutes reference work of practical information concerning the manufacture, test and performance of alternating and direct current motors and combinations of both. An elaborate index facilitates finding information on the standards of various classes of rotating equipment described in the book.

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Electrical Contracting, October, 1934, devotes considerable space to helpful suggestions for the selling and installing of wiring in conjunction with the Federal Housing Act financing for the medernization of homes. "Ten Ways in Which the Electrical Industry Can Employ F.H.A. Financing" and "Fourteen Suggestions for Selling Modernization" and "Modernization Profits Depend on Planning" together with "House Wiring Modernization Opportunities" provide useful information and methods for the handling of this type of work. An editorial on the National Electrical Code revision proposed by the utilities crystallizes contractor thinking on this proposed revision and sounds a warning that "to undertake an emasculation of the code would result in the last code in its present form becoming a standard for years to come in city after city, thereby destroying progress."

Hardware World for October, 1934, has an editorial "On Not Raising Hogs" both with amusing and serious aspects. The editorial shows how, carried to logical conclusions and applied to other industries, the dealer who had not sold any hardware or appliances should receive substantial checks, too.

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Electrical Dealer for October has a number of interesting and valuable articles for electrical merchants. "More About Where to Sell Chest Refrigerators" tells where the market for these can be developed. There are several good articles on lighting the home and details of sales campaigns built around lighting. "There Still Ain't No Santa Claus" is a strong, straight talk from Rudolph August, right to the point that selling is the only thing that will sell electric ranges. It should prove stimulating to any salesman.

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Electric Kitchen Times for October, 1934, contains a very revealing answer to the question many dealers have asked, "Does the meter plan of selling bring failure or success?" Experiences of The May Co. in Los Angeles, which lost considerable money in its meter plan selling, and of the Eastern Outfitting Co., which made a success of the plan, show that the down payment is the key to the situation. George R. Conover, managing director of the Electrical Association of Philadelphia, one of the most successful electrical cooperative leagues in America, sums up excellently "How to Sell Electric Ranges."

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Sight Saving—*Review of Reviews and World's Work*, Sept., 1934. An article by Joe Chamberlin treating with the science of seeing from the consumer's standpoint. An excellent article to show to prospects for lighting. Editorials in the same issue on government operation of the power business are excellent also.

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Electrical Merchandising for October has several valuable articles for the electrical retailer. "Design for Selling" tells of the influence of modernizing design on appliance sales. "Why Refuse a Lift" asks retailers a very pertinent question regarding the use of the manufacturers' display material which is available to them. "Getting Into the Oil Burner Business" deals with the fundamentals of entering this business which is increasing its importance in the West. "This Store Has a Permanent Electrical Exposition" is a story of Hale Bros., San Francisco electrical department. There are also a number of small feature articles on selling of various types and kinds of appliances. Good practical stuff for the electrical appliance merchant.

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How Department Stores Rate Electrical Appliance Firms—*Sales Management*, Sept. 15, 1934. A revealing survey made in 150 of the largest department stores in the country, rating the policies of electrical appliance manufacturers and revealing what these stores think of NRA and nationally advertised goods. Everyone interested in electrical appliance merchandise should read this article.

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False Gods—*Red Book*, Oct., 1934. A strong editorial by Bruce Barton dealing with some of the false premises in governmental policies regarding overproduction on one side and the creation of large surpluses in power on the other.

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British Cooking Tests Prove Gas Superior to Electricity—*Western Gas*, Oct., 1934. An article every electric salesman should read to appreciate the measures which are being used by the gas industry to combat the increasing public acceptance and desire for electric cooking.

News of Note + + +

Utilities Lose in Los Angeles Election

Results of a special municipal election held Sept. 27 in Los Angeles, Calif., with a series of proposed charter amendments at issue, give the Los Angeles Department of Water and Power authority to borrow money from the state or federal government to acquire the electric properties of the Los Angeles Gas and Electric Corp. Nine other proposed amendments affecting the operation of the Department of Water and Power, including one to permit the sale of excess power from Boulder Dam to private power companies in the first four years after completion of the project, when such excess is expected to prevail, likewise were carried.

The voters, however, registered a surprise defeat of a measure providing for the granting of 40-year franchises to gas companies. The unexpected defeat of the proposal developed confusion as to future operations of the Los Angeles Gas and Electric Corp., serving the Los Angeles area. The corporation has been operating for fifty years on a constitutional franchise for gas lighting. Several years ago, the city instituted litigation contending that gas is now propelled through street mains for heating purposes. The corporation was ordered in a superior court decision to obtain a gas franchise for all purposes by July 12, 1935. The 40-year franchise proposal which was on the ballot was a compromise measure agreed on by the corporation and the city Bureau of Power and Light. The corporation has the alternative of resubmitting the measure at the municipal election to be held next April and of continuing the litigation which would have ceased had the amendment carried. The city in the meantime loses franchise revenue estimated at $200,000 per year.

The election results affecting the utility situation follow:

2. Providing for the granting of indeterminate franchises to transporation companies only, such as railways.
   Yes 82,949
   No 91,464
3. Providing for the granting of indeterminate franchises applicable to all types of private utilities.
   Yes 80,128
   No 94,999
4. Providing for the granting of 40-year gas franchises to gas companies, the city reserving the right to purchase the property of the franchise holder after 10 years.
   Yes 95,155
   No 97,958
5. Providing for a 5 per cent preferential on the purchase by the city of California goods and merchandise.
   Yes 78,888
   No 92,816
14. Authorizing the Department of Water and Power to repay loans from the government over a twenty instead of a ten-year period.
   Yes 136,748
   No 44,539
15. Delegating authority to the Department of Water and Power to draft rules to conform with NRA regulations in the matter of labor and the letting of contracts.
   Yes 120,645
   No 60,901
16. Empowering the Department of Water and Power to borrow from the state or Federal government to acquire the electric properties of the Los Angeles Gas and Electric Corp.
   Yes 112,070
   No 78,824
17. Authorizing the department to take over a part of the outstanding bonded indebtedness of the same corporation.
   Yes 108,982
   No 77,419
18. Authorizing the department to retain all employees of the corporation in their respective capacities without regard to civil service requirements.
   Yes 116,501
   No 65,159
19. Authorizing the letting of contracts to the most responsible contractor, rather than to the one who submits the lowest bid.
   Yes 106,376
   No 75,894
21. Permitting sale of excess power from Boulder Dam to private power companies in the first four years after completion of the project when such an excess is expected to prevail.
   Yes 119,279
   No 60,464
22. Authorizing the Department of Water and Power to prepare budgets to cover a three-year period, instead of drafting such budgets annually.
   Yes 115,422
   No 64,637

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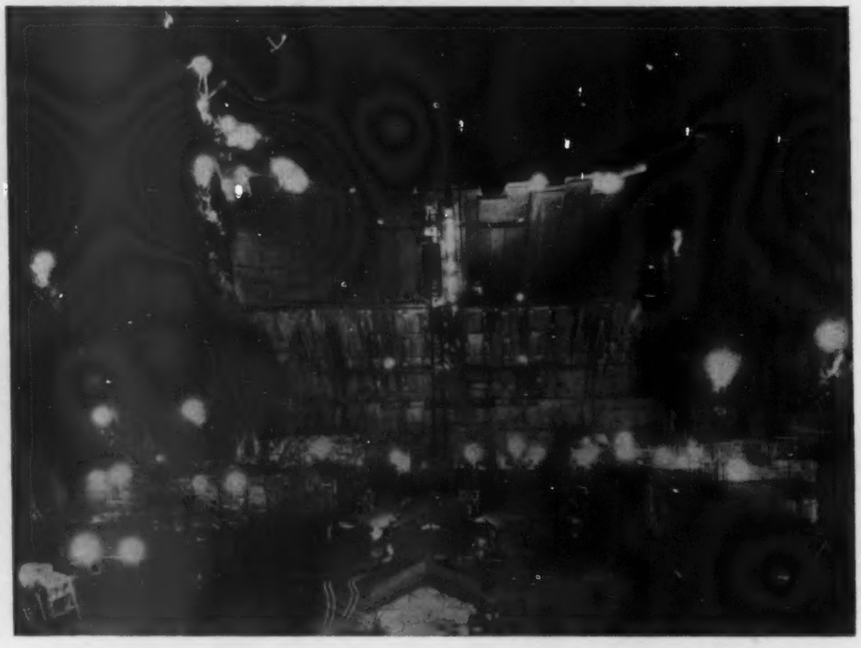
Boulder Dam Progress Ahead of Schedule

With the project two and a half years ahead of schedule rapid progress continues to be made in all stages of construction and operation on Boulder Dam. On Oct. 5 the amount of concrete placed in the dam itself was 2,653,000 yards or 82 per cent of the total. On that date the highest concrete in the dam was at El. 1060 with 180 ft. remaining to reach the total dam height 729 ft. Closing the bypass and beginning the storage of water in the reservoir will be effected about Dec. 15. Concrete pouring on the intake towers is expcted to be completed by the first of January.

Power house construction on Oct. 5 showed a total of 142,000 cu. yd. of concrete in place out of a total of 250,000 cu. yd. for the two power houses. The steel trusses for the power house have arrived and final completion of the structures is scheduled for June, 1935. The sequence decided upon for placement of units in the Nevada power house which will be equipped first, is N2, N4, N1 and N3. Equipment in the Arizona power house will follow later.

The date on which first power can be generated is dependent primarily upon stream flow because the power contracts require that a storage of 4,500,000 acre-ft. must be in the reservoir before the first power is generated. Thus, even if adequate stream flow occurs it is not expected that power will be generated before late in 1935 or early in 1936. The total stream flow passing Boulder Dam from January 1, 1934, to October 1, 1934, was only about 3,531,000 acre-ft.

Storage of water behind Boulder Dam will begin about Dec. 15. On October 5 the dam was within 180 ft. of its crest



L. A. Bureau Awards $1,500,000 in Contracts

Contracts aggregating approximately $1,500,000 have been awarded by the Los Angeles Board of Water and Power Commissioners for electrical equipment to be used in conjunction with the Boulder Dam transmission line being constructed by the Bureau of Power & Light. Included were transformers, disconnecting switches and oil circuit breakers.

The transformer order, the largest in the last five years, was awarded to the Westinghouse Electric & Mfg. Co., at a price of $952,000. Seven 65,000-kva. units rated at 287/132 kv. were included in the contract. These are for use on the receiving end of the Boulder Dam transmission line and will be arranged in two banks of three each with one spare. Each unit will weigh nearly 500,000 lbs. and stand 35 ft. high. The two banks of transformers will have a capacity equivalent to approximately 300,000 hp.

On a bid price of $140,889 the Delta-Star Electric Co., of California received a contract for sixteen 287 kv., 1,200 amp., 3-pole motor-operated disconnecting switches. Known as "MR-239" these switches will be the largest yet produced in this country. They will have a 60-cycle dry flashover value of 830 kv. and wet flashover value of 755 kv. They will be manufactured in Los Angeles by the Kelman Electric & Mfg. Co. with whom Delta-Star has made manufacturing arrangements for production of Delta-Star designs in the western territory.

Contract for furnishing fourteen oil circuit breakers for use on the transmission loop which will distribute energy to various receiving stations in Los Angeles, was awarded to the Kelman Electric & Mfg. Co. on a bid of $130,660.

In addition to the above, orders were placed for 8,000 suspension clamps for the transmission line and $67,720 worth of oil circuit breakers.

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Fresno System Not For Sale

Value of the Fresno distribution system of the San Joaquin Light & Power Corp. has been set at a figure ranging between $1,404,097 and $1,522,557 as of June 30, 1933, by engineers of the California Railroad Commission. This value is based on a reproduction cost new less depreciation basis and variations are due to different periods of time over which reproduction prices were fixed. The figures do not include an item of $64,640 as physical severance damage and do not include anything for intangible severance damage.

Prices were submitted at a hearing conducted by the commission on the application of the City of Fresno for a valuation looking toward ultimate condemnation and purchase.

In a letter to the Fresno City Council, A. Emory Wishon, President of the San Joaquin company, stated that the Fresno distribution system was not for sale. The letter also questions the constitutional grounds under which the present proceedings are being conducted. It denies further that "its properties in the city of Fresno are subject to expropriation under eminent domain proceedings."

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Sacramento to Vote on Municipal System

Voters of the Sacramento Municipal Utility District comprising the major portion of Sacramento County, Calif., will vote on Nov. 6 on a $12,000,000 bond issue for the construction of an electric distribution system and steam generating plant. The bonds will require a two-thirds majority for passage.

Plans for the bond issue followed the completion of a survey to establish the cost of a municipal system conducted by Burns & McDonnell (Electrical West, Oct., 1934, p. 44) contemplated to use the money for construction of distributing facilities to provide service for every consumer in the district and for the erection of a steam generating plant of sufficient capacity to carry the peak demands and supply all necessary power requirements of the district without recourse to any other existing power system.

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Mexican Energy Tariff Effective in 1936

The proposed Mexican tariff of five centavos per kilowatt-hour on imported electrical energy will not become effective until Jan. 1, 1936, instead of Jan. 1, 1935, as announced in the October issue of Electrical West. Negotiations have been taken up with officials at Mexico City with the idea of exempting Lower California, which imports large amounts of energy from the United States for irrigation purposes.

The Tia Juana Diesel engine plant erected to serve the towns of Tia Juana and Ensenada was shut down shortly after it began operating due to a breakdown of two of the engines. Since the breakdown the San Diego Consolidated Gas & Electric Co. has resumed serving these two communities.

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• ANACORTES, WASH., is planning the installation of an ornamental street lighting system on Commercial Avenue to cost about $10,000.

Seattle Proposes to Purchase Puget Sound

Formal proposals that the Seattle Lighting Department acquire the power, light and steam heating facilities of the Puget Sound Power & Light Co. in Washington have been placed before the Seattle city council by J. D. Ross, superintendent of the municipally-owned system. Highlights of the plan as outlined include:

(1) Purchase for approximately $95,000,000 of all properties of the Puget Sound Power & Light Co. connected with its light, power and steam heating business.

(2) Issuance of 5 per cent 30-year utility bonds to finance the project,, the bonds to be payable solely out of earnings of the plants purchased and to be delivered in exchange for the properties taken over.

(3) Sale to such municipalities as desire to exercise the right of purchase such portion of the power company's plant as is located within their boundaries, the price to be the actual cost of the property to the City of Seattle.

(4) Solution of Seattle's street railway problem by including the remaining $8,336,000 of municipal street railway bonds held by the power company in the assets to be purchased.

It has been pointed out that before any such contemplated deal could be consummated that it would be necessary to submit it to a vote of the Seattle electorate. In addition, statutory authority such as the Bone Bill, which is to be voted on in November, would be needed to legalize the operation of power systems outside the city's corporate limit.

The book value of the stocks and bonds of the Puget Sound Power & Light Co. is carried at $127,763,369. Because there have been no formal overtures no statement has been issued by the company regarding the plan.

Since the initial proposal was made there have been no indorsements from Washington cities or power districts which might be affected by the plan. In a subsequent statement, J. D. Ross declared that if such indorsements are not forthcoming, he is ready to proceed with a program to purchase only those portions of the Puget Sound system which compete with City Light.

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• MUNICIPAL PLANT DEFEATED—Voters of Shelton, Wash., turned down a proposal to put the city into the power business by defeating a $100,000 bond issue on Sept. 12. The money would have been used to purchase the distribution system of the West Coast Power Co., which now serves the city. Energy would have been brought from two lumber mills in the area.

New Contract Awarded For Diablo Plant

Contract for the construction of the Diablo power house of the City of Seattle's Lighting Department has been awarded to the Rumsey Construction Co. of Seattle, on a bid of $339,010.

On the original call for bids for this work, the Henrikson-Alstrom Construction Co., of Seattle, was the low bidder with a figure of $267,298. However, the firm was unable to obtain a satisfactory performance bond and all bids were cancelled and the job readvertised. The contract covers the construction of the power house, a combination transformer and switch platform, a railroad bridge and the power house tail race.

Identical bids were submitted by the Pacific Coast Steel Corp., the Northwest Steel Rolling Mills and the Columbia Steel Co. for furnishing 431,000 lbs. of angle steel to be used in the construction of towers for the Diablo transmission line to be built by the Seattle Lighting Department. This price was $10,236.

Bids submitted for furnishing oil circuit breakers and disconnecting switches to be installed in the Diablo power house have been rejected and a new call for figures issued. This action resulted from a temporary restraining order obtained by the Pacific Electric Mfg. Co., which firm's bid was thrown out when the board ruled that the bid bond accompanying the bid had not been approved by the city's corporation counsel.

Figures for furnishing the oil circuit breakers ranged from $115,600 to $156,925 and for the disconnecting switches, $20,825. Contract for furnishing distribution panels and cabinets for the power house was awarded to the NePage-McKenny Co. of Seattle, at a figure of $2,384. Bids on twelve other items involving electrical apparatus and equipment for the plant were taken under advisement.

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Boulder Power Contracts Modified For Cities

Pasadena, Burbank and Glendale have applied to Secretary of the Interior Ickes for modification of their contracts with the federal government concerning the purchase of power to be generated at Boulder Dam. In the case of Pasadena, a request was made for a three-year load-building period which would not require the city to take the 68,000,000 kw.-hr. per year, originally contracted for as soon as power is ready for transmission.

Glendale requested five years in which to take its maximum amount of energy, while Burbank asked for a seven-year term during which progressive amounts of energy will be purchased up to the full amount contracted.

In the meantime the Interior Department concluded agreements with the cities of Los Angeles, Pasadena, Glendale and Burbank whereby their utilities will obtain power at the dam at a rate of ½ mill per kw.-hr. during the interim between completion of the first unit and the effective date of their contracts. The Southern Sierras Power Co. will be allowed under the agreement to purchase energy which the cities cannot use at the ½ mill rate.

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District Power Bill Declared Unconstitutional

Washington's Grange District Power Bill, a public ownership measure enacted into law by initiative in Nov., 1933, is unconstitutional according to an opinion handed down by the superior court at Davenport, Wash. The decision was based on the grounds that property owners were not provided with opportunity of expressing their wishes as to having their property included in the power districts.

Plans to appeal the decision to the State Supreme Court were abandoned by the Lincoln County Grange and in consequence the question of forming a power district in that county will not appear on the November ballot.

The action against the measure was brought by The Washington Water Power Co., the Great Northern Railway and the Northern Pacific Railway on the basis that their property would be taxed by a competing tax-free business if the district were formed.

A similar injunction will prevent voters in Grays Harbor County from passing upon a power district proposal as the result of an injunction granted in the Grays Harbor superior court.

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• NORTHWEST CONFERENCE SET — Planned uses of public works, including the large power projects in relationship to other factors of social-economic advancement will be one of the subjects discussed at the Second Annual Pacific Northwest Regional Planning Conference to be held in Seattle, Wash., Dec. 12-14, 1934. The Conference is being held under the direction of the Pacific Northwest Regional Planning Commission which is composed of representatives of state planning boards from Washington, Oregon, Idaho and Montana.

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PUBLIC SERVICE CO. of Colorado has just concluded 44 miles of 22-kv. line from Del Norte, Colo., to the Summitville Consolidated Mine, Inc., to serve a newly connected load of approximately 700 hp.

Utah Power & Light Is Commended

Utah Power & Light Co. has been commended highly for outstanding public service in 1934 in alleviating disastrous drouth ravages in its territory and saving agriculturists from complete ruin.

In a report made recently to Governor Henry H. Blood his Bear river water committee estimated nearly $4,000,000 in crop values had been saved farmers by releasing Bear Lake water into Bear river through dredging operations. To provide the water the power company removed 90,000 cu. yd. of earth in deepening the channel at a cost of $45,000 at its Lifton pumping plant on Bear lake.

So appreciative of the action of the company was the committee that its chairman Frederick J. Champ, referred specifically to "the constructive and helpful attitude of the Utah Power & Light Co., the cooperation of which has made possible delivery of a large portion of the water distributed under this emergency program."

"The entire Bear river system of the company," he said, "has been conscientiously devoted throughout the season from the pumps at Bear river to the dam at Cutler, to irrigation purposes in preference to power development, and its personnel has been continuously at the command of this committee in carrying out the details of this program in conformity with action taken by the water users themselves."

The power company also was praised for its helpfulness in the Salt Lake City water program during the year and the realization of the Pine View dam project in Ogden canyon.

The activity of the power company was actuated by a realization that community building and territorial welfare are the foundation upon which a public utility builds, said Dr. Adam S. Bennion, assistant to the president.

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Prospect Developed For Bonneville Power

The first major industry to inquire into rates for power being developed at Bonneville on the Columbia River, is the Bohn Aluminum & Brass Co., of Detroit, according to reports reaching Portland from Washington, D.C. The company sought prices on 60,000 hp. to be used in a plant to be located on the Columbia River on tide water.

It is reported that there is a possibility that the plant would use either alumite or wyomingite which are aluminum ores found in large quantities in Utah and Wyoming. The tide water site is specified in case it became necessary to import a bauxite ore.

Pacific Power & Light Resumes Dividends

Declaration of the regular preferred dividend for one quarter by the board of directors of Pacific Power & Light Co., Oct. 11, presages general improvement in the utility business in the Northwest. A dollar and seventy-five cents per share on the 7 per cent preferred and $1.50 per share on the $6.00 preferred was voted to be paid Nov. 1 to stockholders of record Oct. 18. Approximately 5,700 stockholders are affected.

Dividends on both classes of these stocks were wholly suspended Nov. 1 last year after a half dividend on each had been paid covering the two previous quarters. These stocks are both cumulative and there is accrued at the present time, $8.75 on the 7 per cent stock and $7.50 on the $6.00 stock. No dividends have been paid on the company's common stock since 1931.

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Portland Plans Electrical Exposition

A world's electrical and industrial exposition, in celebration of the completion of the $31,000,000 Bonneville dam, in 1936, was suggested at the city council meeting of Sept. 27. By a vote of 4 to 1, the council declared itself in favor, and the resolution authorized the mayor to appoint a committee to work out the plans and organization for carrying the project through.

The object, of course, would be to tell the story of cheap power to the world, in order that the city might get a market for the power when it was ready. The suggestion was made that it be held near St. Johns, in what is known as the Peninsular District, where quantities of city and privately owned land are available.

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Offer to Build Wind Plant For Fresno

An offer to construct a 25,000-kw. wind power plant has been made to the City of Fresno by the Madaras Rotor Power Co., a Michigan concern. The city is proceeding with condemnation action against the San Joaquin Light & Power Corp. for the Fresno distribution system.

In its offer, the Madaras company proposed to finance and construct a plant estimated to cost $1,000,000 and to sell power to the city at 3.5 mills per kw.-hr. A similar offer was also made to the San Joaquin company.

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• Edison Earnings Increase — Gross earnings for the Southern California Edison Company Ltd., for the third quarter of 1934 showed an increase of 1.3 per cent over the same period last year. Net earnings were $6,377,590 as against $6,502,619 last year. The amount available for common dividends was 47c per share as compared with 52c per share during the corresponding period of 1933.

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• Rate Reduction Denied—Proposed reduced rates for power used in pumping water for winter irrigation, application for which was filed by Pacific Gas and Electric Co. and San Joaquin Light & Power Corp., have been ruled discriminatory by the California Railroad Commission. The rates differ from the regular agricultural schedule in that although the energy charged is the same, the annual demand or service charge is entirely eliminated.

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• B. C. Electric Railway Co. presented a series of five symphony concerts in Stanley Park, Vancouver, B. C., during the summer and will continue to broadcast the music of this concert group one hour each Monday night during the fall and winter. Programs run from 7:30 to 8:30 p.m. from station CRCV, Vancouver.

SQUARE D ELECTRICAL EQUIPMENT

BETTER HOUSING PROGRAM

There's BUSINESS here

LET'S GO AFTER IT!

The government is reviving the building industry through the National Housing Act, which provides loans to home owners at exceptionally low interest, for repairing and remodeling purposes. The electrical industry is going to get its share of the millions of dollars to be spent—how much, of course is up to us. To help you, Square D has just issued the attractive booklet illustrated at the right. It contains reasons why the home owner should install adequate wiring facilities. Most important is entrance equipment; the booklet points out its important functions, why it should be of sufficient capacity and be made by a reliable manufacturer, how future requirements should now be considered by the home-builder or owner to save money later on.

Proper design, construction and safety of electrical equipment are fully stressed. Many reasons are given as to why Square D entrance equipment is better, how it will increase the value of the home where it is installed. On following pages, other profit making Square D lines are illustrated.

Write direct to Square D Company, Inc., today. Ask for your supply of these booklets—"The Other Entrance to Your Home". Then go after this new business that's here—and get your share of it—with the help of this sales getting literature.

Your Supply of These 12 Page Booklets is Free

SQUARE D COMPANY
ELECTRICAL EQUIPMENT
INC.
1320 East Sixteenth Street - - - Los Angeles, Calif.

P.C.E.A. Conclave Programs Announced

Final plans for the joint conclaves of the Operating Economics and the Business Development Sections of the Pacific Coast Electrical Association to be held in Los Angeles, Nov. 8 and 9, and in San Francisco Nov. 15 and 16, have been completed. The Los Angeles meetings will be held in the auditorium of the Los Angeles Gas and Electric Corp. and the San Francisco meetings at the Sir Francis Drake Hotel.

Programs at both conclaves will be identical, this plan having been adopted so as to promote attendance and to reduce traveling expense of the association membership. Members will attend the conclave nearest their headquarters.

Principal feature of the program will be the presentation of the four problem papers which outline some of the major problems confronting the industry and which will form the basis for a series of prize awards for papers offering the best solutions to the problems presented (Electrical West, Oct., 1934, p. 45.)

On Nov. 8 at Los Angeles the meeting will be under the direction of the Operating Economics Section, of which R. R. Cowles is chairman. The program is as follows:

Address by A. H. Markwart, president, P.C.E.A.

"From an operating standpoint what types and how much load can be added to existing electrical facilities?" by S. J. Lisberger, Pacific Gas and Electric Co.

"How can the cost of electric distribution be lowered?" By W. E. Row, Southern California Edison Co.

"How important is voltage regulation and what are the most practical and economical methods of accomplishing it?" by L. A. Buese, Los Angeles Gas & Electric Corp., and Frank A. Ayres, Southern Sierras Power Co.

"How much free repair or maintenance service can and should the power companies give their consumers?" by C. W. Leihy, Electrical West.

Discussion will follow the presentation of each of the problem papers.

The program on Nov. 9 will be presented by the Business Development Section of which H. M. Crawford is chairman. The program follows:

Remarks by A. H. Markwart, president, P.C.E.A.

"What are the most effective methods of increasing domestic use of electricity?" by George D. Belsey, The George Belsey Co., Ltd., and H. H. Courtright, Valley Electric Supply Co.

"What are the most effective methods of increasing commercial, industrial and agricultural uses of electricity?" by H. N. Carroll, Pacific Gas and Electric Co., and R. C. McFadden, Southern California Edison Co.

"What are the most effective methods of improving cooperation within industry?" by W. A. Cyr, Electrical West, and H. L. Harper, Graybar Electric Co., Inc.

"What are the most effective methods of improving customer good-will?" by Don C. Ray, Pacific Gas and Electric Co., and A. E. Holloway, San Diego Consolidated Gas and Electric Co.

In addition to the all-day sessions, on Nov. 9 there will be a general luncheon meeting at which W. C. Mullendore will speak. The San Francisco conclave will have identical programs except that luncheon meetings will be held on both Nov. 15 and 16.

The eight problem papers, together with pertinent discussion, will be published in the December issue of Electrical West. Solutions submitted by members of the association must be completed by March 1, 1935. In the case of each of the problems prize awards of $50, $25, and $10 will be made by the association for the three best solutions.

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• CASCADE MACHINERY & ELECTRIC Co., Seattle, has received an order from the San Poil Power & Light Co., Republic, Wash., for a 300-hp. Diesel generating unit, together with switchboard and accessories to replace the plant destroyed by fire on Sept. 29.

WHERE TO BUY . . . IN THE WEST

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Insulators

Lapp Line Post Insulators eliminate radio interference due to both dirt and electro-static conditions.

Write for Bulletin No. 112 describing and cataloguing these insulators.

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EXPANSION ANCHOR

Made of certified malleable iron—expands 2½ times its rated size—63% contact in firm, undisturbed earth—easily installed—maximum holding power.
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JAMES R. KEARNEY

Northwest Association Sections Organize

Organization of the Engineering & Operation Section and the Business Development Section of the Northwest Electric Light & Power Association has been effected within recent weeks. Each section held its first executive committee meeting of the new year, setting up a tentative program and plan for the annual section meetings to be held in the Spring of 1935.

The engineers met in Seattle at the call of W. S. Hill, Grays Harbor Railway & Light Co., chairman. The section is again organized in four major committees with chairmen as follows: Production and Generation, J. E. Yates, Pacific Power & Light Co.; Transmission and Distribution, T. A. Purton, Idaho Power Co.; Utilization, P. P. Ashworth, Utah Power & Light Co.; General Committee, J. B. Fisken, The Washington Water Power Co.

Operating problems will again engage the principal attention of the production and generation, and transmission and distribution committees. Utilization committee will study problems under four sub-committee chairmen as follows: Utilization Devices, Walter Brenton, Portland General Electric Co.; Meters, L. D. Snow, Puget Sound Power & Light Co.; Illumination, F. H. Murphy, Portland General Eletric Co.; Wiring, S. B. Clark, Northwestern Electric Co. The General committee is broken down into the following three sub-committees: Power Systems Engineering, G. E. Quinan, Puget Sound Power & Light Co.; Code, H. H. Schoolfield, Pacific Power & Light Co.; Accident Prevention, J. D. Ellis, Northwestern Electric Co.

A plan for publishing reports from month to month in Electrical West as fast as they are ready for publication will be worked out. These reports and others will be fully discussed at the Spring meeting, which is tentatively scheduled to be held in May 1935 at a place to be determined. Joe Hellenthal, Puget Sound Power & Light Co., is vice-chairman of the section.

The Business Development Section advisory council met in Portland October 12 with Tom D. Fulford, Puget Sound Power & Light Co., section chairman. The section will again be organized into three bureaus: Residential Sales, Glenn L. Jackson, The California Oregon Power Co., chairman; Industrial and Commercial Sales, Carl L. Hoffman, The Washington Water Power Co., chairman; Rural Sales, C. J. Hurd, Mountain States Power Co., chairman.

Vancouver, B. C., was selected as the place of the annual meeting and the time tentatively set in February 1935. The keynote of the meeting, as established by the advisory council, is to be "practical plans and methods of adding load in each of the three departments of the business covered by the three bureaus." Most of the reports represented will tell the actual experiences of companies who have made an outstanding success in adding load of certain types, rather than the composite theory of committee members. Use will be made of talking pictures and skits to dramatize the business building possibilities in the fields covered. R. M. Bleak, Utah Power & Light Co., is section vice-chairman.

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• Pasadena Earnings Taxed—A proposed charter amendment which would permit a transfer of eight per cent of the gross earnings of the Pasadena Municipal Light Department to the city's general fund for retirement of city bonded debt will appear on the municipal ballot on Nov. 6. Use of the light department funds for this purpose would be permitted, under the terms of the proposed amendment, for four years providing the transfer would in no way injure the efficient operation of the department.

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Copper Bearing Steel

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Write for details of the profitable IRONRITE franchise.

GORDON E. WILKINS
3100 TELEGRAPH AVE., OAKLAND, CALIF.
District Representative: The Ironite Ironer Co.

...about the Trade

IRONRITE IRONER CO., Detroit, Mich., announced the appointment of Gordon E. Wilkins, 3100 Telegraph Ave., Oakland, as its district representative covering the State of California. Mr. Wilkins states that henceforth Ironrite ironers will be distributed exclusively through wholesalers. He has appointed the George H. Eberhard Co., San Fransico, as northern California wholesaler and Watson & Wilson, Inc., Los Angeles, as southern California wholesaler. F. H. McGinnis, Sacramento, will continue as the Ironrite dealer in Sacramento County and the Easy Housekeeping Shops in southern California will continue to retail Ironrite ironers in their several stores.

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• W. A. GUSCOTT, Denver contractor, has just finished the $8,500 Tivoli Brewery job the first all-electrified brewery in the West. Some $300,000 was spent for a central electric system, new barrel house and motor-driven appliances which will speed up production and enormously add to the efficiency of this pioneer beer-making establishment. Passing from the atmosphere of brew, Guscott is also wiring The Drive In Public Market which is being built on the site of an early-day mansion belonging to former U. S. Senator Lawrence C. Phipps. Electrification of the new market calls for the expenditure of approximately $3,500 on wiring and fixtures.

●

• GORDON E. WILKINS, sales director, Mary Dowd Reardon Studios, Oakland, representative of the Winsted Hardware & Electrical Manufacturing Co., Winsted, Conn., has announced the appointment of the following wholesalers in the eleven Western States to handle the "Durabilt" line of appliances manufactured by this company: George H. Eberhard Co., San Francisco; Reiman Wholesale Electric Co., Los Angeles; Service Electric Supply Co., San Jose; Sierra Wholesale Electric Co., Fresno; North Coast Electric Co., Portland, Tacoma and Seattle; Jensen-Byrd Co., Spokane; B & R Electric Co., Denver; and Strevell-Patterson Hardware Co., Salt Lake City.

●

• E. E. FOLANDER, former representative of the Meadows line of washers and ironers in southern California, has recently been assigned the southern California agency for the Getz Power Washer Company's American Beauty line of washers, vacuum cleaners and ironers. His offices are at 164 South Central Ave., Los Angeles.

LISTENWALTER & GOUGH CO., Los Angeles, has been appointed distributor for southern California for the Automatic Washer Co., Newton, Iowa. The appointment was made by W. Neal Gallagher, president of the Automatic company, following a trip to the Pacific Coast. The Automatic contract calls for delivery of 10,000 units within one year.

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• MARINE ELECTRIC CO., 195 Fremont St., San Francisco, gave what is planned to be the initial one of a series of annual banquets for its staff Oct. 10. The meeting was held at "The Cat's Whiskers." Addresses were given by J. W. Cathcart, vice-president; J. J. O'Hara, superintendent and treasurer and Everett Helm, secretary. Thirty-five were present.

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• UNION HARDWARE & METAL CO., large hardware wholesalers, of Los Angeles, have taken on the line of Arvin heaters, manufactured by the Noblett-Sparks Industries, Inc., of Columbus, Ind., according to that company's California representative, E. J. Jordan, of 316 Commercial St., Los Angeles.

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• L. A. NOTT, San Francisco, has just been appointed northern and central California representative for the Superior Switchboard & Devices Co., Canton, Ohio.

●

• SIMPLET ELECTRIC CO., Chicago, Ill., has announced the appointment of H. B. Squires Co. as Pacific Coast representatives for the line of conduit fittings manufactured by the company.

Chromalox Super-Speed

Range Replacement "Top Burners"

Sizes to fit all makes of Electric Ranges

Makes old ranges cook as fast as latest 1934 models

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Quick Shipments from Direct Factory Representatives in the West

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911 Western Ave., Seattle, Wash.
524 S.W. Pine St., Portland, Ore.
61 Fremont St., San Francisco, Calif.
912 E. 3rd St., Los Angeles, Calif.

THE PETERSON COMPANY
1912 Blake St., Denver, Colo.

• ELECTRICAL APPLIANCE SERVICE CORP., is the new name, which also tells of the expanded scope, of the well known Washing Machine Service Co., 908 West Seventh Place, Los Angeles, of which Wm. Vogel is president. The company recently took over the vacuum cleaner repair part stock of Schallheim Co.; Charles Eiker, formerly of that company, being placed in charge of the vacuum cleaner department. Since then the company has been appointed distributors of parts for Landers Frary & Clark, Apex-Rotarex and Johnson, and has also put in stocks of parts of all kinds of appliances. The name of the company has been changed to fit the enlarged service rendered.

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• J. J. SCHALLER, formerly manufacturers' agent representing the "Circle F" line of wiring devices, has become affiliated with T. G. Gale, and J. F. Koblink, in the National Electric Supply Co., formerly known as the International Mercantile Co., and located at 1671 West 11th St., Los Angeles. With the new reorganization the company now carries a complete line of wiring supplies.

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• DAVE STURGEON, Sturgeon Electric Co., Denver, was successful bidder on the Fine Arts Building electrical installation at Colorado Springs. The building itself is reputed to cost around $400,000. It will include a Little Theater for which up-to-date lighting effects are mandatory; also modern electrical equipment to properly illuminate the rare canvases, statues and other works of art. The job will involve about ten months' work and cost about $20,000.

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• SALT LAKE CITY and San Diego distributors of Leonard refrigerators were among the prize winners in that company's refrigeration sales contest. Salesman W. E. Peterson, Salt Lake City, also received a prize award of $200.

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• G. F. CUNNINGHAM, proprietor of the A.A.A. Electric Co., announces the removal of his company from 3112 University Ave., San Diego, to 3592 Thirtieth St.

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• ORANGE GROVE VACUUM SERVICE CO. recently moved from 420 East Orange St., Pasadena, to 5125 Meredian St., Los Angeles.

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• DARNELL ELECTRIC SHOP has moved into new and attractive quarters at 123 North Downey Ave., Downey, Calif. Former location was at 152 West Second St. This is a pioneer firm in the electric and radio business in this city.

• SAM HALL, manager of Electric Supplies Distributing Co., wholesalers, of San Diego, is making an extended tour of the Eastern States, visiting the factories and home offices of all of the manufacturers whose lines are being handled by his firm. He left San Diego Aug. 25, and expects to return in November.

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• C. J. NUTSCH, electrical contractor and dealer, Los Angeles, wired the first factory built "Honeymoon Cottage," designed by Architect Wallace Neff, which is now on display on Wilshire Boulevard. The plan is to build such cottages in a factory and move them to the lot of the purchaser all ready to be occupied.

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• THE B. C. DISTRICT of the Easy Washing Machine Co., Ltd., was recently awarded honors for winning the July-August sales competition against eleven other districts throughout Canada. Business in the Western province increased 35 per cent over the same period in 1933, according to reports.

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• BENNETT - FORSBERG CO., Electrical contractors and illuminating engineers, Los Angeles, are busy with a number of sizeable modernization jobs in Southern California. Among them are the Philharmonic Auditorium, and the Mullen & Bluett Co., store, in Los Angeles, and the Savoy Theater, San Diego.

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• W. E. BUTLER ELECTRIC CO., recently moved from 524 North Sierra Vista, Monterey Park, to 1805½ South Garfield, Alhambra.

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• SEASIDE ELECTRIC CO., of Ventura, formerly at 1800 Thompson Blvd., moved recently to 96 South Oak St.

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• KIMBALL UPSON CO., of Sacramento, Calif., has been appointed distributor for the International Radio Corp., of Ann Arbor, Mich., makers of Kadette radio sets.

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• NEWBERY ELECTRIC CORP., of Los Angeles, of which G. E. Arbogast is proprietor, moved from its location on Venice Blvd. to 315 West Ninth St., Los Angeles.

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• HENGER-SELTZER CO., 945 East Pico St., Los Angeles, has just been appointed Southern California distributor for the "Circle F" line of wiring devices.

•

• MACHTOLF-DALL ELECTRIC CO., recently moved from 1109 South Brand to 1005½ South Brand, Glendale, Calif.

• BEN FRANKLIN ELECTRIC CO., Seattle, Wash., has been appointed distributor for Automatic washers and irons in Washington by the Automatic Washer Co., Newton, Iowa.

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• W. E. BUTLER ELECTRIC CO., Monterey Park, recently moved from 112 South Nicholson to 524 North Sierra Vista.

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• J. G. CORRIN has been appointed southern California representative of the Clark Controller Co., Cleveland, Ohio.

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• FRED W. CARLSON of Seattle, Wash., has been named Pacific Northwest representative of Meter Devices Co., Canton, Ohio.

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• FLORENCE & SEVILLE APPLIANCE CO. is a new electric appliance store opened at 2707 East Florence Ave., Huntington Park. The business is operated by A. Williams and E. Eastburn.

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Electrical Photometrical, Chemical and Mechanical Tests. Inspection of Materials and Apparatus at Manufactory
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...about People

Holterman Elected Wesco Vice-President

R. J. HOLTERMAN, Pacific Coast manager of the Westinghouse Electric Supply Co., has been elected a vice-president of that organization. Other changes in the Westinghouse wholesaling organization include the appointment of B. W. Clark as vice-president and general manager and H. N. Gansman as vice-president.

Mr. Holterman has spent his entire career in the electrical wholesaling business on the Pacific Coast. His connection dates back to 1905 when he became stock clerk for the California Electric Works, predecessor of Western Electric. In 1909, he joined the Holabird Electric Co. as outside salesman. He became vice-president and general manager of the company in 1911 and has held this position continuously through the various changes in ownership, first as Fobes Electric Co. of California and then as Westinghouse Supply.

R. J. HOLTERMAN

He has been an active figure in electrical industry. As a member of the Jovians, he participated in the birth of the San Francisco Electrical Development League and served as vice-president of that organization. He is past chairman of the Pacific Division of the National Electrical Wholesalers Association and is a former director of the California Electrical Cooperative Campaign.

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LLOYD ALDRICH, city engineer of Los Angeles, has been elected president of the Engineers' Club of Los Angeles to serve during the club's 1934-35 year. He succeeds Raymond Wilcox of the Southern California Edison Co.

S. H. BABCOCK for the past twelve years a member of the merchandising organization of the Westinghouse Electric & Manufacturing Co., in the San Francisco, Salt Lake and Portland districts, has been added to the staff of Electrical West as district sales manager in the Chicago, Cleveland, Detroit and St. Louis districts. He will be in charge of advertising sales in those territories. Mr. Babcock was graduated from Stanford University with the class of 1921.

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HARRY J. BILLICA, for many years transmission and distribution engineering specialist with the Graybar Electric Co., Inc., and later a manufacturers' representative with headquarters in San Francisco, has become sales engineer for the electrical department of the Indiana Steel and Wire Co. at Muncie, Ind.

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Devlin Appointed to California Commission

FRANK R. DEVLIN, San Francisco attorney and member of the California Railroad Commission from January, 1915, until 1921, has been re-appointed to that body by Governor Frank F. Merriam to succeed Clyde L. Seavey, who resigned in August to become a member of the Federal Power Commission. In his letter of appointment, Governor Merriam states that while the present appointment is for the unexpired term of Mr. Seavey, that on the expiration of that term in December, he will appoint Mr. Devlin for the full term of six years to follow.

Previous to his first term on the Railroad Commission, Mr. Devlin was for eight years district attorney of Solano County and thereafter, Judge of the Superior Court in that county. He was a member of the California Assembly in the sessions of 1905 and 1907. His original appointment to the Railroad Commission was by the then Governor Hiram W. Johnson.

•

W. D. SHANNON, for many years Pacific Coast engineer for Stone & Webster and more recently in consulting practice in Seattle, has been named deputy administrator to the subdivisional code authorities for the lumber industry in the Pacific Northwest. He will supervise the West Coast cross arm, West Coast logging and lumber, Pacific veneer packaging and red shingle subdivisions.

•

ARTHUR T. GEORGE, for many years chief counsel for the California Railroad Commission, has entered private practice with offices in the Russ Bldg., San Francisco.

McDonald Heads Seattle Electrical Organization

W. D. MCDONALD, Seattle manager of the Westinghouse Electric & Manufacturing Co., has been elected president of the Electric Club of Washington (formerly the Electric Club of Seattle) succeeding A. L. Pollard, of the Puget Sound Power & Light Co. Immediately on being installed in office, Mr. McDonold suggested the change in name of the Seattle electrical organization, stating that it was his intention to broaden the scope of the club with additional members from other cities throughout the state and work with the statewide organization for the betterment and aggrandizement of the electrical industry as a whole.

W. D. MC DONALD

Mr. McDonald has been identified with the Westinghouse company for thirty-three years. After graduation from the Chicago Manual Training School, now a part of Chicago University, he took a position as general superintendent and purchasing agent of the Calumet Electric Street Railway Co. of Chicago. Following this connection he engaged in the manufacture of electrical machinery and later went to the Baltimore & Ohio Railroad on rail electrification work.

Upon the completion of this work he joined the Westinghouse company and after an apprenticeship course at the works, was transferred to the Chicago sales department. From there he came to Seattle in 1914 as district manager.

Other officers of the Electric Club of Washington include: S. G. Hepler, Arrow Electric Co., first vice-president; M. P. Hotelling, Seattle Building Department, second vice-president; E. E. Bratt, Eicher & Bratt, treasurer; and S. H. Harrison, Westinghouse Electric & Mfg. Co., secretary.

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• W. D. CHAMBERS has been made traveling auditor of the San Diego Consolidated Gas & Electric Co., San

Diego. Starting with the Byllesby organization in 1919 he has been with the construction department in various of its companies since. Previous to coming to the San Diego company he was with the Mountain States Power Co. at Casper, Wyo., until 1929, coming to the San Diego company from there.

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ALVIN WHELPLEY, electrical engineer, formerly connected with the Robert L. St. John Co., is now with Leland & Haley, consulting electrical and mechanical engineers of San Francisco.

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A. W. KRUEGER, formerly with the General Electric Supply Corp., is now connected with The Estate Stove Co. in the Los Angeles area with address at 1700 Santa Fe Ave.

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Death Calls Former San Diego Manager

Major-General George H. Harries, former vice-president of H. M. Byllesby & Co., and known on the Pacific Coast for a brief tenure as temporary general manager of the San Diego Consolidated Gas and Electric Co. between May and September, 1924, died at Waverly, Md., after an attack of pneumonia, Sept. 29, aged 74 years. For the past several years since his retirement from Byllesby & Co., he had lived in Los Angeles. Gen. Harries, born in South Wales, had a brilliant record in U. S. military service and public utility management. He served in the Spanish-American War as colonel commanding the First District of Columbia Infantry in the siege of Santiago. In the World War he was decorated for distinguished service because of the diplomatic and efficient manner in which he handled the port of operations and debarkation at Brest. In his citation for distinguished service were these words: "He overcome what seemed to be insurmountable obstacles." At the San Diego utility he served as general manager during the interim between the departure of H. H. Jones from that company to the Northern States Power Co. at Minneapolis and the appointment of William F. Raber, its present president and general manager, who came from the Southern Colorado Power Co.

•

M. M. O'SHAUGHNESSY, known as the "builder of Hetch Hetchy," San Francisco's water and power development, and colorful figure in the engineering life of the West, died Oct. 12, just sixteen days before the scheduled completion of the project. For 20 years he was city engineer of San Francisco and since 1932 had been consulting engineer to the city's department of public utilities.

CARL BURATTI, manager of the utilities department of Johns-Manville in southern California and recently inaugurated president of the Los Angeles Electric Club, has announced committee chairmen to direct activities of the club during the 1934-1935 administration. The committee chairmen are: attendance, W. G. Cross, Southern California Edison Co.; civic and inter-club relations, S. E. Gates, General Electric Co.; auditing and finance, D. A. Smith, Graham Reynolds Electric Co.; fellowship, W. H. Davie, Allied Industries, Inc.; membership, John Fox, National Carbon Co.; program, B. F. Woodard, Southern California Edison Co.; public policy, A. E. Hitchner, Westinghouse Electric & Manufacturing Co.; publicity, D. L. Scott, Los Angeles Gas and Electric Corp.; sports, Jefferson Davis, Southern California Edison Co.; stunts, C. D. Lamoree, C. D. Lamoree Co.; visiting and relief, J. Grady Rollow, Los Angeles Gas and Electric Corp.

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BENJAMIN F. PEARSON, manager of industrial relations, Southern California Edison Company Ltd., until his retirement on Jan. 1, this year, has been appointed by Mayor Frank Shaw as a member of the Los Angeles city planning commission.

•

CHARLES M. SANFORD, formerly assistant general manager of Pacific Power & Light Co., has been appointed assistant vice-president of that company and of Northwestern Electric Co. and Portland Gas and Coke Co. Mr. Sanford will be in charge of a newly created property department in which will be centralized all activities and records pertaining to property, franchises, leases, taxation and damage claims for the three utilities.

•

H. J. GILLE, manager of the agricultural development department of the Puget Sound Power & Light Co., has been named to serve on a committee of twelve to study the creation of a new state bureau for promoting new settlers in the State of Washington.

•

J. V. CONGWER, supervisor of hydraulic design and construction for the Tacoma Public Utilities Department, has left Tacoma to join the staff of the Tennessee Valley Authority as principal engineer of design and planning for proposed dams.

•

KENNETH L. FRANCIS, former vice-president of Albert Sechrist Manufacturing Co., Denver, Colo., has become president, succeeding O. W. Hampton, resigned.

LLOYD FLATLAND has been appointed chairman of a code coordinating committee of the Construction Division Conference in San Francisco. This code coordinating committee is working to relate the various subcodes under the construction industry NRA code and make for greater harmony in the operation of these codes. The committee plans the establishment of a central depository for all of the construction industry in the near future.

•

CECIL LARSON, for eight years with the Grayham-Reynolds Electric Co., Los Angeles, has become affiliated with the Biddle Trade Bureau, of that city. Helen Mikesell Kistler, former secretary of the Los Angeles Electrical Contractors Assn., is also connected with the Biddle Trade Bureau in that city.

•

GROVER BURKE, City Electric & Fixture Co., was placed in charge of the electrical wiring in the Seattle home renovizing program which removed a ramshackle house to a public square and completely rebuilt it. The Seattle Electric Club's "renovized home committee' includes: Jeff Alexander, chairman; Tom Wood, Norman Bost, B. A. Travis, Harry Martin and Harold Hudson.

•

FOUR PROMOTIONS were announced last month affecting Public Service Co. of Colorado personnel: Hugh H. Lenhart, district manager at Alamosa, is transferred to Sterling; G. C. Chipman from Brighton to Alamosa; C. A. McNeill, local manager at Windsor, replaces Chipman at Brighton, and Paul E. Brookover, a student engineer from the Denver office is assigned to Windsor.

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EDWARD R. LEGG, former Northwest district manager of Kelvinator Corp., with headquarters in Seattle, has been named manager of the company's Direct Sales Department. Mr. Legg started with the Kelvinator Corporation in ice cream cabinet sales work in southern California in 1926.

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JEAN FRICKELTON, secretary for the Electric Appliance Society of Northern California, besides operating a publicity agency, has been named editor of *Western Furniture Retailing* and its supplement, *Appliance Retailing*, published in San Francisco at 180 New Montgomery St.

•

J. A. MILLER, city electrical inspector of the city of Burbank, died Oct. 3 while en route to the Mayo Clinic at Rochester. He was aged 57.

... in Western Business

Editor's Note: Because many factors influence the output of electric power and the sales of electrical appliances, apparatus and supplies, ELECTRICAL WEST *will carry as a regular feature a page summary of conditions in various industries whose business conditions directly and indirectly affect the electrical industry. These reports are compiled from reports from banks in the principal Western cities, our own correspondents, and reports of the Twelfth District Federal Reserve Agent.*

General

Pacific Coast business for September registered some moderate declines from the high August levels reached with the settlement of Coast labor disputes. Lumber operations, canning, flour milling and freight car loadings decreased. Residential building in the larger cities turned upward. Retail trade in urban and rural areas showed substantial gains, with the major gains in the Northwest and Rocky Mountain areas.

General business activity dropped back to about the level which has prevailed during most of 1934. The Wells Fargo Bank & Union Trust index for the Pacific Coast based on the 1923-25 average level as equaling 100, stood at 70.2 for September as compared with 72.9 in August and 67.8 in September, 1933. For every month this year the index has been higher than for the corresponding month in 1933. The *Business Week* index for the entire United States was at 56.8 on October 27 as compared with 60.7 a year ago.

Agriculture

Major crops in this territory are going to market under the best conditions in several years. Favorable yields and higher prices make the lot of the Western farmer this year a happier one than for several years past. Coupled with this will be the estimated distribution of $61,250,000 from AAA in the form of benefit and rental payments for cotton, wheat, corn and hogs. Montana, Washington, Colorado, Oregon and California will receive the bulk of the disbursements, the first two states receiving more than $26,000,000 of the total.

Prices as measured by the new revised U.S.D.A. index are at 102 per cent of the 1909-14 levels, an increase of 6 per cent over August and 28 per cent over a year ago. Chief increases were in the meat animal and poultry divisions which provide 22 per cent of the total farm income of the Far West.

Estimates of 1934 wine production from California grapes are for 15,000,000 gallons of dry and 25,000,000 gallons of sweet wines, 20 per cent less than the 1933 record vintage. Modernization of wineries has been a fertile field of new business for the electrical industry during the last year. Another crop affected by repeal has been hops. Production in Oregon, Washington and California is placed at 39,745,000 lbs., which is slightly above last year. However, a carryover of 8,658,000 lbs. has affected the price.

Citrus crops have been affected adversely by the weather and will be smaller than last year. Growers' income should be higher on account of better prices. The commercial apple crop in the Pacific Northwest is 9 per cent larger than last year but 22 per cent less than the five-year average. Prices are approximately the same.

Lack of rainfall has seriously affected pastures and has delayed winter plowing and sowing. There is a shortage of feed and water in practically every section of the West which will likely cause abnormal increases in the slaughter of livestock during the next few months. Cattle price have fluctuated considerably with a slight net loss.

Industry

Output and employment in industry both declined moderately during September in the Pacific Coast states. Canning and packing were responsible for most of the loss. Excluding canning the Federal Reserve index of employment for the Twelfth District remained at the highest point reached this year, 83 per cent of the 1923-25 average.

CONSTRUCTION: Public works awards in September declined but the total for the third quarter was $67,000,000 representing a substantial increase over the first and second quarters and a 70 per cent increase over the third quarter of 1933. Non-federal works, financed in part or in whole with federal funds, continued to increase. Residential building, reflecting the stimulation due to the federal modernization program, increased. Building permits in 53 cities showed a gain of 5.5 per cent during September over 1933. Five states showed net gains ranging from 25 to 44 per cent. California, Nevada and Utah showed declines. For nine months building permits were 5.9 per cent below 1933, when the San Francisco bridge contracts are eliminated from the total.

LUMBER: In contrast with the sharp expansion in August, lumber production slumped during September. Operations in the Douglas fir producing areas continues larger than during most recent months but in the Western pine regions production is lower than at any time since the middle of 1933. Bright factor was that orders and shipments continue to exceed production, with a consequent decrease in stocks.

PETROLEUM: Daily average output decreased to 468,000 bbls., the smallest average since February. Production still exceeds quotas due to sharp reductions in prorations. Refinery production also declined.

MINING: Copper mining activity is dull. The Chino mine in New Mexico closed during the month. In Arizona the Ajo, Bisbee, Magma, Superior and Jerome properties are operating on quotas. Utah Copper is running at about 20 per cent of normal. In Montana some of the mines are being cleaned out preparatory to reopening those which have high silver values. Gold mining activity continues at high levels. In Utah the Mercur mines are reopening and development work has started at Silver King and Park Utah. In the Coeur d'Alene district the mill capacity is being increased at the Sunshine mine. In California a strike in the Jackson area has tied up operations. A new electrically equipped dredge began operating near Oroville.

POWER PRODUCTION: The Federal Reserve Bank index of average daily power production for September for the eight Pacific Coast states was 154 per cent of the 1923-25 average, an increase of 2 per cent over August and 13 per cent over September, 1933. There has been a gradual increase since June. Total power output in California for September was 5.37 per cent ahead of the same month last year.

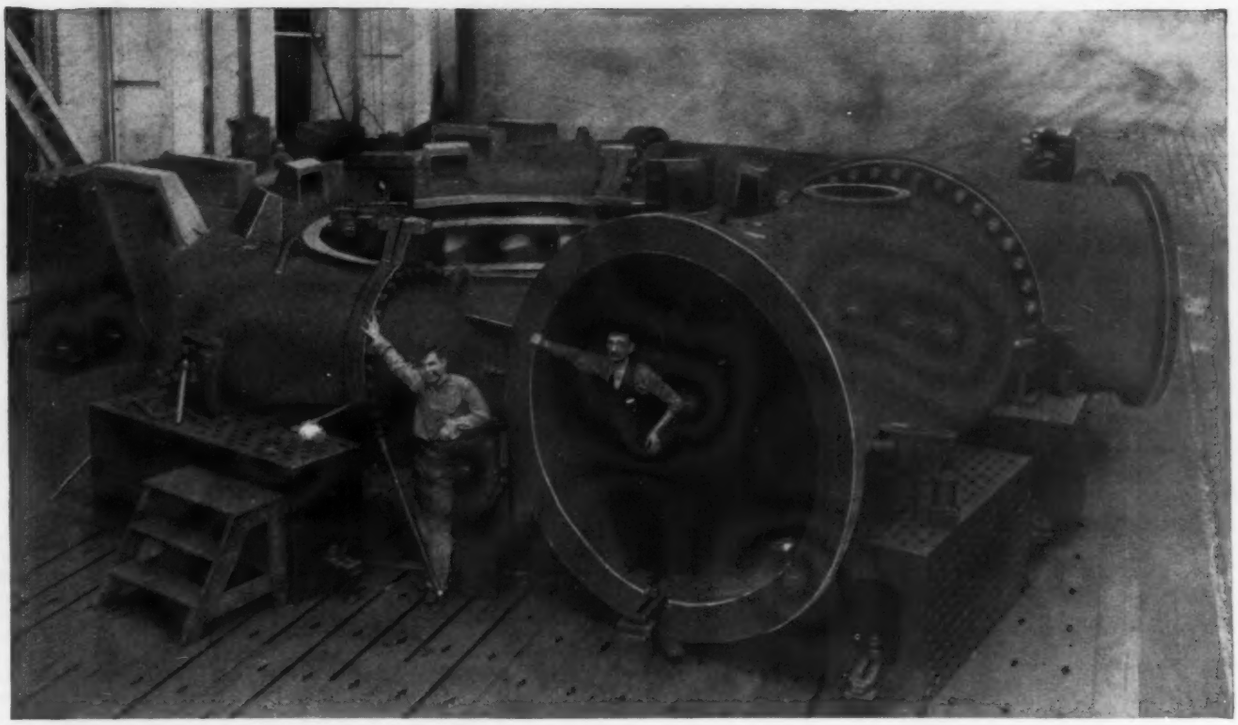
Trade

Although wholesale trade declined during September, the volume was 9 per cent ahead of September, 1933. Every line reflected the decrease except paper and stationary. Electrical supplies reported a drop of 3.6 per cent compared with August but were 14.7 per cent ahead of September last year. The nine month cumulative total for 1934 is 39.6 ahead of 1933. This increase is only exceeded by agricultural implements.

Retail trade as reflected by department store sales increased from 76 per cent of the 1923-25 average in August to 78 per cent in September. California sales showed only a slight increase, the bulk of the gain being in Oregon, Washington, Utah and Idaho. Automobile sales fell off but were still 15 per cent ahead of September of last year.

Future

With favorable election outcomes which seem likely at this writing, business in the Far West is expecting further upward tendencies. Particularly is this true of electrical appliance sales, which are being stimulated by business-stimulating rate action on the part of several utilities.



BOULDER DAM 55,000 H.P. TURBINE - - - - - - - - CAST STEEL SPIRAL CASING

Just another job

This huge assembly weighing seventy tons presented a problem in machining. Too large in physical dimensions to mount in the 35 ft. boring mill, it was mounted directly on the slab. Then reversing the usual procedure of rotating the work around the tool—the tools were rotated inside the stationary work.

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...in New Equipment

Appliance Cord Retriever

A retractable device which both retrieves and checks the movement of an appliance cord has been placed on the market by the Bosch Products Co., San Francisco. By a slight pull or release, the concealed appliance cord automatically adjusts itself to any extended length desired up to 6 ft. It provides 6 ft. of No. 16 quality cord, suspended in a metal raceway within the wall without the use of spools, drums, reels, rollers, ratchets, springs or contact brushes. It will frame into a standard 3 in. wall. It is switch controlled and in addition, the plate provides an extra convenience outlet. It is an invention of Henry Bosch of the Pacific Gas and Electric Co.

●

New Dielectric

"Laytex," a new and revolutionary dielectric has just been announced by the United States Rubber Co. A high degree of flexibility, great tensile strength, resistance to compression, high dielectric strength and insulation resistance and the ability to permit thinner walls which make possible finished conductors lighter in weight and smaller in bulk, are among the claims made for the new product. It is derived directly from latex, the milk of the rubber tree. It is a non-coagulated, non-milled dielectric which has been highly purified. It is deposited from liquid form upon a conductor by the dip or pass method. The liquid is solidified on any given length or section before that section is in physical contact with any mechanical support. It has a dielectric strength of 800 volts per mil, and an insulation resistance constant of 54,000, which is twice as high as is required by A.S.T.M. specifications.

●

Automatic Electric Torch

An automatic electric torch for welding and brazing has just been placed on the market by the Electric Torch Manufacturing Co., Oakland, Calif. It is a portable unit designed for operation at 110 volts. It produces a purely electrical flame between two parallel carbons or between a single carbon or metal electrode and the material to be welded. The welding current is modified in the transformer which is part of the apparatus to provide a double voltage that will supply a momentary ionizing current to start the arc and thereafter through an impedence and nichrome ballast maintain the torch at a constant temperature. It is primarily designed as a production apparatus on sheet metal and other light parts and for repair work where the mass of material is not over ¼ in. in thickness.

Line Post Insulators

Use of line post insulators as a substitute for pin type insulators to eliminate troubles which operating experience has shown to be inherent in this latter type, is discussed in Bulletin No. 112 just issued by Lapp Insulator Co., Inc., LeRoy, N.Y. This development is of particular interest on the Pacific Coast in view of the fact that it permits the economical elimination of radio interference caused by insulators. Defects in pin type insulators which this new type overcomes include punctures, cracking, ability to withstand power arcover conditions and ability to withstand contaminated atmospheric conditions. The line post insulator is of the fog type. The new bulletin gives complete information on construction, installation and operation of these insulators.

●

Plugs Approved

All models of the four-pole plugs for three-phase, 440-volt alternating current service manufactured by the Cannon Electric Development Co., Los Angeles, have been approved by Underwriters Laboratories. These plugs and receptacles are made in a wide variety of types and capacities, including a 90 deg. handle-type connector for use with a flush-door receptacle, the whole assembly shedding water. The contact feature is a radical departure from common practice in tin-type connectors. The receptacles are taper-bored at the bottom, collapsing and compressing the split end of the plug prong with such positive pressure as to make the carrying capacity of the contact greater than the cable attached.

●

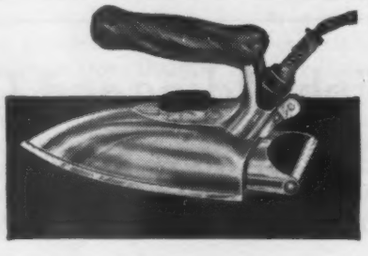
Toaster and Tray

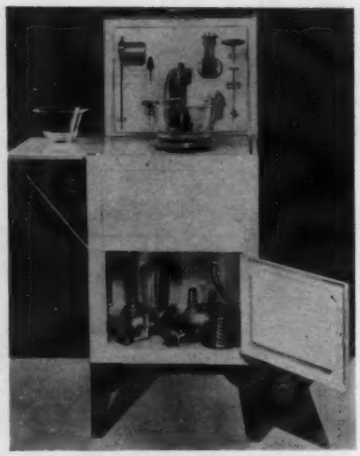
A new toaster and tray combination has been announced by the Chicago Flexible Shaft Company, Chicago, Ill., makers of Sunbeam appliances. It includes a flat toaster that toasts two slices of bread at a time or two sandwiches at a time with a new five-compartment buffet tray. The buffet tray is made of clear, fire-polished, substantial glass. The combination will retail at $5.95.

●

Streamlined Iron

Radically new design features are provided in a new 3½ lb., 1,000-watt automatic iron announced by the Winsted Hardware Manufacturing Co., Winsted, Conn. It possesses an air-cooled handle which is rigidly supported on the back, leaving the front open.





Mixer Cabinet

Permanent location in the kitchen for the General Electric Hotpoint mixer and accessories is provided in a new de luxe cabinet just announced by the G. E. Merchandise Division at Bridgeport, Conn. It is of steel construction throughout and finished in white baked enamel with contrasting black legs. By merely pressing the button on front of the cabinet the cover closes and the mixer is lowered into the cabinet out of sight. The most frequently used accessories are right on the cover and in a lower compartment there is ample space for all additional accessories, as well as two or three of the most used small appliances. A double convenience outlet is located on the right side of the cabinet which permits the operation of other appliances. A drop shelf is provided on the left side.

●

New Hotpoint Iron

A new automatic iron of streamlined appearance, featuring a thermal switch with an "off" position, which makes disconnecting of attachment plug unnecessary, and also featuring a new thermostat with a greater range of heat controls, has been placed on the market by General Electric Company's Merchandising Department, Bridgeport, Conn. Bearing the trade name "Moderne" the new iron weighs 3½ lb. and has a rating of 1,000 watts. It has a combined soleplate and pressure plate cast from duralumin and is equipped with a Calrod heating unit. Other features include a "Calmold" handle with integral thumb rest, double button-nooks, a permanently connected 10,000-cycle cord with a spring cord protector, and a heel rest which holds the iron in upright position when not in use.

●

Circuit Breakers

The General Electric Company's FHKO-339 line of outdoor oil-blast circuit breakers has been extended to include voltage ratings above 34.5 kv., the principal improvement over the older FHKO-239 design being the elimination of the removable mechanism box and cover. In the new units, the operating mechanism frame is welded to the breaker dome. With this new arrangement, the only openings in the dome are those for the two bushings, a hand-hole with bolted cover allowing access to the crank, and some small plug holes for inserting pins in the linkage. The change thus effected greatly reduces the number of linear feet of gasket joints, with consequent less likelihood of water leakage. The 46-kv. breakers are equipped with "L" type, heavy oil-filled bushings. Higher-voltage breakers have "F" type bushings filled with light oil.

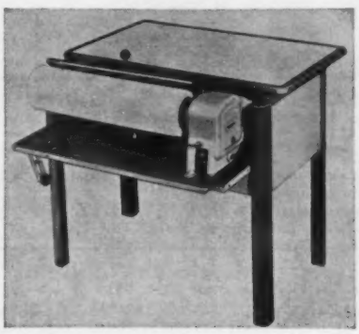
Aluminum Floodlight

Through the employment of pure sheet aluminum construction treated with a special "Illuminous" process to produce efficient reflecting surfaces S & M Lamp Co., Los Angeles, has placed on the market a newly designed floodlight and a complete new series of reflectors which show as high as 87 per cent light output and high candlepower values, according to tests made by Electrical Testing Laboratories. Model No. 1005 is a closed type floodlight with 16¾-in. heat resisting lens, designed to burn 750-1,000- or 1,500-watt clear lamps. It is particularly adapted for use on all types of construction jobs because of its light weight and ease of installation. The new reflectors are also constructed of pure sheet aluminum and are made in various types for both indoor and outdoor use. They are available in three groups: the shade holder type; the socket type and the detachable reflector type.

•

Utility Ironer

Having additional utility as a modern full size all-steel kitchen table, a new electric ironer has just been announced by the Westinghouse Electric & Manufacturing Co., Mansfield, Ohio. The top is porcelain enamel and the ironer itself and the body and legs are finished in durable baked-on enamel. Heat is provided by a ribbon-type element of 1,200 watts. New freedom from physical fatigue and an increased convenience and efficiency in operation are claimed as a result of the new features incorporated in the ironer.



Hotpoint Range Timers

Popularly priced are two new Hotpoint electric timers for range ovens. Both are Telechron motor operated. The TM-18 is an entirely new idea in timer clocks. It turns the oven "on" only. Most homemakers who take advantage of the automatic features of an electric range utilize the timer chiefly to turn the oven current "on" while they are absent from the kitchen. For that reason this new model meets the needs of the homemaker in practically every case. It retails for $11.50. The TM-19 model timer has both the "on" and "off" feature. It is finished in polished black Textolite with ivory dial. Retail price is $14.50.

•

"Pin-It-Up" Study Lamp

A new "Pin-It-Up" study lamp which conforms fully to the specifications of the Illuminating Engineering Society has been designed by the Railley Corp., Cleveland, Ohio, for featuring in the Better Light-Better Sight campaigns this fall. Due to its unique "pin-it-up" features, the new lamp can be hung up wherever better light is needed. Primarily designed for students, this lamp is claimed to be invaluable to anyone who uses eyes for reading and study. It uses a 100-watt lamp and puts 30 foot-candles of light on the working plane, an intensity made possible by the high reflecting factor of the shade which is sprayed dead white. The opal glass diffuser distributes light on desk or table top with minimum glare and the open top directs light upward to give an indirect lighting effect and relieve contrast.

New Thrustors

Providing ten combinations of thrust and stroke ratings varying from 50 to 3,200-lb. thrust and from 2 to 16-in. stroke, a new line of Thrustors combining many improvements has been announced by General Electric Co., Schenectady. The thrustor is a self-contained combination of motor-driven centrifugal pump, oil chamber and piston that produces a smooth straight-line thrust through a definite length of stroke especially suitable for the operation of clutches, brakes, valves or doors. A number of driving motor arrangements are available, either a.c. or d.c. Tilting as much as 45 deg. from the vertical is permissible with these new thrustors. They are also designed for continuous operation with the piston in the stalled position.

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MAGNETIC CONTACTORS — Ward Leonard Electric Co., Mount Vernon, N. Y. describe their two types of magnetic contactors in two new bulletins, No. 4401 on A.C. Contactors and No. 1901 on D.C. Contactors.

DISTRIBUTION TRANSFORMERS—Improvements introduced in distribution transformers by the Pennsylvania Transformer Co., Pittsburgh, Pa. are outlined in their four page circular No. 300 that has just been published.

CIRCUIT BREAKER—The small new Itelite circuit breaker designed for lighting and narrow type distribution panelboards is described in Bulletin No. 634 just issued by the I-T-E Circuit Breaker Co., Philadelphia, Pa.

CONCENTRIC ARMORED DROP CABLES—A new bulletin dealing with the design and improvements of overhead service entrances has been published by the American Steel & Wire Co., Chicago, Ill. The bulletin is No. 100 on concentric Armored service entrance and service drop cables.

BUILDING WIRES AND CABLES—A booklet covering Safecote building wires and cables has just been brought off the press by the General Cable Corp., New York City.

EXPULSION PROTECTIVE GAPS—The General Electric Co., Schenectady, New York, has issued booklet No. GEA-1858A on expulsion protective gaps for the protection of transmission-line insulation. The discussion is centered on the principle of operation, construction, installation, application, and operating life of the G-E expulsion protective gap.

SUPERVISORY CONTROL; RELAYS—The Westinghouse Technical Press Service, East Pittsburgh, Pennsylvania, has just released four publications: Westinghouse's Polarcode, Jr. supervisory control; Westinghouse Type SG auxiliary relays; Westinghouse Type LE photo-relay; and Westinghouse directional overcurrent relays. The first of these catalog sections is directed particularly to the small station operator.

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James R. Kearney Corp.

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Malleable Iron Range Co.
Mary Dowd Reardon Studios Ltd.
Swartzbaugh Mfg. Co.
Westinghouse Elec. Supply Co.

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General Elec. Co.
Russell & Stoll Co.

Brackets, Wood
Locust Pin Co.

Bus Fittings
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General Elec. Co.

Cables Accessories
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General Elec. Co.
John A. Roebling's Sons Co.

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Columbia Steel Co.
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General Elec. Co.
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Carbon Products
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Square D Co., Inc.

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Refrigerator Parts & Accessories
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Refrigerators
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Graybar Elec. Co., Inc.
Malleable Iron Range Co.
Westinghouse Elec. & Mfg. Co.

Relays
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Leach Relay Co.
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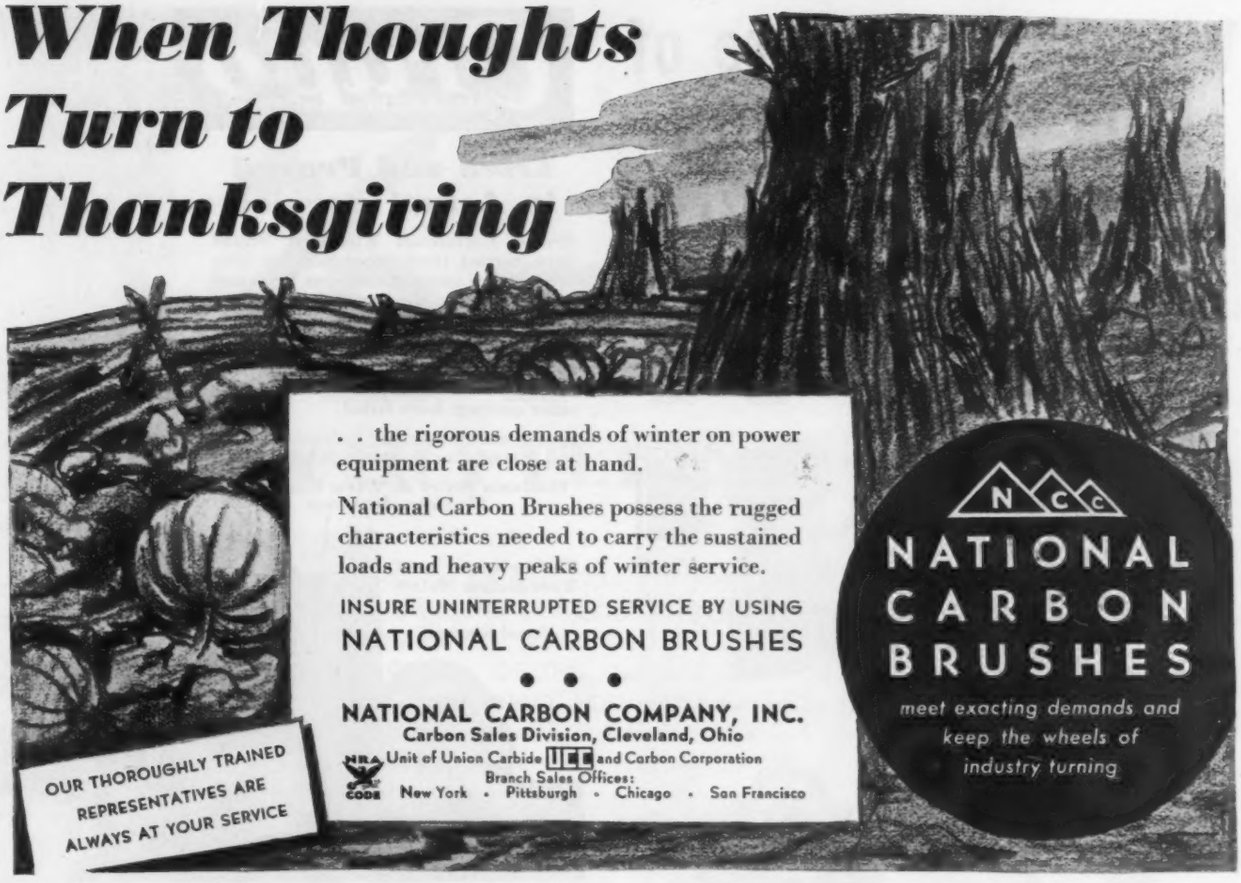
When Thoughts Turn to Thanksgiving



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Electrical West

Where to Buy It in the West—*Continued*

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Place your product **before your customers every month. An advertisement in *ELECTRICAL WEST* brings you, without cost, a listing every month in this "Where to Buy It in the West" directory. It gives you this plus value in addition to the interested attention of an alert readership of active, energetic business men and engineers.**

Why You Are Sure of FULL PROTECTION with G-E Cutouts

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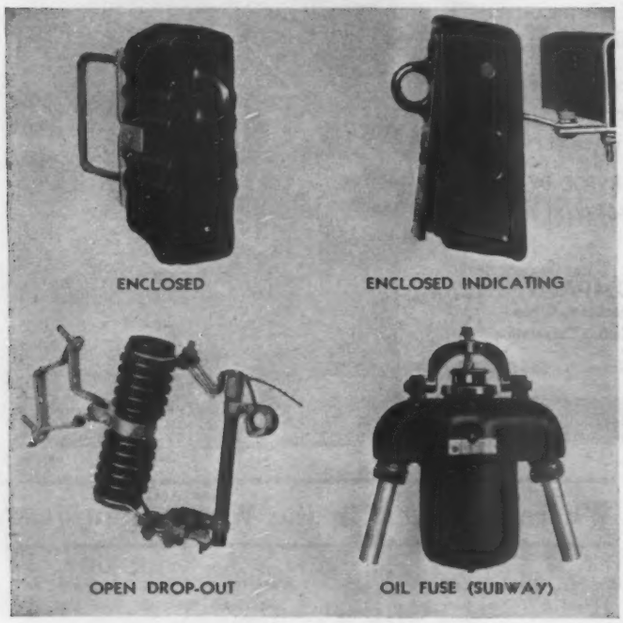
Thorough Tests Prove Their Liberal Factors of Safety to Meet the Shocks and Stresses of Service



G-E fuse cutouts have high mechanical and electrical strength. Their liberal factors of safety have been effectively demonstrated by the following tests:

Short-circuit tests, over the full range of fault currents, with several ratings of fuse links, including the maximum at full-rated voltage under circuit conditions more severe than those encountered in service, oscillograph records being made of every test

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The standards set as a result of these tests are maintained by constant laboratory supervision of materials and continued testing of the parts and of each complete cutout.

Ask your G-E representative for further information on G-E cutouts. General Electric, Dept. 6B-201, Schenectady, N. Y.

340-12

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The *pure zinc* galvanizing, thoroughly bonded to the wire, has proved its ability to resist corrosion under the most adverse conditions and long after other coatings have failed.

Specify genuine *Crapo* Galvanized Wire and Strand—for greater dependability!

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Muncie, Indiana

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Telephone and Telegraph Wire

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Steel Strand

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1/2 Price

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Our customers have just been told of the greatest bargain rate on Extra Electricity ever offered by this, or to our knowledge, any other power company.

★

This offer, coming as it does just before the Christmas buying season, carries with it immense selling possibilities for the retail dealer. It is, in effect, an offer to give away a certain amount of electricity with every appliance purchased that puts new load on the lines. A spectacular advertising campaign is taking the story to every village, town and city in our territory. Manufacturers and jobbers have been fully informed and they are planning to assist you in every way possible. We are supplying direct several thousand colorful display cards for use in your windows and on your floors. Our newspaper advertising schedule has been stepped up to the highest point this year. Get your tie-in campaign under way immediately. Let people know that the sooner they buy, the more they will have saved by the time this offer expires. On a large appliance, this can amount to a substantial sum. Work for this campaign and it will work for you. It fits in perfectly with the Federal Housing Program and the Electric Appliance Society's Christmas campaign. Let's get going! Half-off bargains are snapped up in any man's business!

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LETTERS

and every one a live sales lead for you

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PACIFIC COAST ELECTRICAL BUREAU

447 Sutter Street
San Francisco

601 W. 5th Street
Los Angeles

(Department N-11)